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SUBSCRIPTION RATES.—One year, \$1.00; two years, \$1.50; three years, \$2.00; five years, \$3.00. Canadian subscription, 30 cents additional per year, and foreign subscription, 60 cents additional. **DISCONTINUANCES.**—On and after March 1, 1917, all subscriptions, not paid in advance, or specifically ordered by the subscriber to be continued, will be stopped on expiration. No subscriber will be run into debt by us for this journal. **CHANGE OF ADDRESS.**—Give your old address as well as the new and write the name that appears on the paper. **REMITTANCE.**—Should be sent by postoffice money order, bank draft, express money order or check. **CONTRIBUTIONS** to Gleanings' columns solicited; stamps should be enclosed to insure return to author of manuscript if not printed. **ADVERTISING RATES.**—Advertising rates and conditions will be sent on request. Results from advertising in this journal are remarkably satisfactory. **ADVERTISERS' RELIABILITY.**—The publishers use utmost diligence to establish in advance the reliability of every advertiser using space in this journal.

(Entered as second class mail matter at the Postoffice at Medina, Ohio.)

THE A. I. ROOT COMPANY, Publishers, Medina, Ohio

Editorial Staff

E. R. ROOT
Editor

A. I. ROOT
Editor Home Dept.

H. H. ROOT
Managing Editor

J. T. CALVERT
Business Manager

Bee Supply Department

Orders shipped day received.
Our Warerooms are loaded with
Lewis Beeware.
Every thing at factory prices.
Send for Catalog.

Wax Rendering Department

We do perfect wax rendering.
It will pay every beekeeper to
gather up all his old comb and
cappings and ship to us. We
charge 5c a pound for the wax
we render, and pay the highest
cash or trade prices.

The Fred W. Muth Co.

The firm the Busy Bees work for

204 Walnut Street . . . Cincinnati, Ohio

HONEY MARKETS

CHICAGO.—During the past month honey has sold quite well. Especially is this true of extracted, and it would appear that there is not much more to be marketed. Comb honey has moved off more freely, and stocks are being reduced to a moderate quantity. Indications are that there will not be much carried over in this market. Prices for white extracted honey are 10 cts. per lb.; amber, 8 to 9; comb honey, 14 for the best grades, and the light ambers 12 to 13. Very little of the darker grades is on the market, but sell readily at from 1 to 2 cts. less. Beeswax is very firm, and brings 33 to 35.

Chicago, Ill., Feb. 19. R. A. Burnett & Co.

SAN FRANCISCO.—Extracted honey of all descriptions is in light supply, and the few odd lots arriving are being sold when offered. Prices range entirely according to what the buyer will pay, as there are really no standard quotations dependable except from day to day. Comb honey is moving slowly, but selling better than last month, and stocks are not heavy. We quote extra fancy comb honey, per case, \$3.00 to \$3.10; fancy, \$2.75 to \$3.00; No. 1, \$2.25 to \$2.50. Light-amber extracted honey, in cans, brings 8 to 9; amber, in cans, $6\frac{1}{2}$ to 8. Clean average yellow beeswax brings 30 to 32.

Leutzing & Lane.

San Francisco, Cal., Feb. 15.

LOS ANGELES.—These prices are what the retailer pays our wholesale customers, not what we are buying at. No extracted in bulk is left on this market; small stocks bottled goods; next season's crop prospects are favorable. We quote extra fancy comb honey, per case, \$4.25; fancy, \$3.85; No. 1, \$3.25; No. 2, \$2.50. Water-white extracted honey brings 10; light amber, in cans, 9; amber, in cans, 7. Clean average yellow beeswax brings 35. Wax is being held for foundation, demand strong.

Los Angeles, Cal., Feb. 15. Geo. L. Emerson.

ST. LOUIS.—The demand for comb honey has not improved since our last quotation, and our market is well supplied. Extracted honey is in good demand, and supplies are limited. We quote extra fancy comb honey, per case, \$3.50; fancy, \$3.25; No. 1, \$3.00; No. 2, \$2.50. Light-amber extracted honey, in cans, brings $8\frac{1}{2}$; in barrels, 8; amber, in cans, 8; in barrels, $7\frac{1}{2}$. Clean average yellow beeswax brings 34.

R. Hartmann Produce Co.

St. Louis, Mo., Feb. 16.

PORTLAND.—Demand for comb honey is light; stocks are plentiful. Prices are very unsatisfactory, leaving the jobber no profit. Railroad rates are almost prohibitive on local shipments. Fairly good demand for extracted honey. Best grades are out of the producers' hands, and very little demand for cheaper grades. We quote fancy comb honey, \$3.00; No. 1, \$2.75; No. 2, \$2.50. White extracted honey brings 8; light amber, in cans, 7; amber, in cans, 6. Clean average yellow beeswax brings 25 to 26.

Portland, Ore., Feb. 12. Pacific Honey Co.

PHILADELPHIA.—We are entirely sold out of all undergrades of comb honey, and could still move some shipments that could be moved around at 11 to 13 cents. Now is the time to get these grades marketed if you have any. We are offering our best white at 18 cents, cases of 24 combs each. No extracted to offer.

Chas. Munder.

Philadelphia, Pa., Feb. 16.

KANSAS CITY.—The honey market seems very firm on extracted, and we notice an increased demand for comb honey. We quote fancy comb honey \$2.85; No. 1, \$2.75; No. 2, \$2.50. Light-amber extracted honey, in cans, $9\frac{1}{2}$; amber, in cans, 8. Clean average yellow beeswax brings 30.

C. C. Clemons Produce Co.

Kansas City, Mo., Feb. 16.

PITTSBURG.—Demand is rather quiet, supply meeting full requirements, prices ranging as previously reported. We quote extra fancy comb honey, per case, \$3.75 to \$3.90; fancy, \$3.50 to \$3.60; No. 1, \$3.00; No. 1 buckwheat, \$3.40 to \$3.50.

Pittsburg, Pa., Feb. 19. W. E. Osborn Co.

PHOENIX.—Our honey was all sold some time ago. The market closed higher, and with great demand. Prospects are bright for 1917. Bees are wintering finely. There is no honey on the market to quote. Clean average yellow beeswax brings 26.

Phoenix, Ariz., Jan. 30. Wm. Lossing.

CLEVELAND.—The demand for comb honey continues light, and it is one of the very few articles that have not advanced recently in price. We quote fancy comb honey, per case, \$3.75 to \$3.85; No. 1, \$3.40 to \$3.50; No. 2, \$3.00 to \$3.25.

Cleveland, O., Feb. 19. C. Chandler's Sons.

BOSTON.—Honey is moving well. We quote extra fancy comb honey, per case, \$3.50; fancy, \$3.25; No. 1, \$3.00; No. 2, \$2.75. White extracted honey brings 11 to 12; light amber, in barrels, 9 to 10.

Boston, Mass., Feb. 16. Blake-Lee Co.

TEXAS.—The honey has all been taken up except some inferior grades of dark honey that will be used for feeding purposes. Clean average yellow beeswax brings, on very unsettled offers, from 27 to 35.

Sabinal, Tex., Feb. 14. J. A. Simmons.

HAMILTON.—Demand is better for all kinds, and prices are advancing. We quote extra fancy comb honey, per case, \$2.75; fancy, \$2.50. White extracted honey brings in 60-lb. tins, 13 cts.; light amber, in cans, 11.

Hamilton, Ont., Feb. 16. MacNab Street Branch.

MONTREAL.—Our stock of honey is small, and prices are firm. We quote extra fancy comb honey, per case, 18; fancy, 17; No. 1, 16; No. 2, 14. White extracted honey brings 13; light amber, in cans, $12\frac{1}{2}$; in barrels, 12; amber, in cans, $11\frac{1}{2}$; in barrels, 11.

Montreal, Que., Feb. 16. Gunn, Langlois & Co.

TORONTO.—Market is much firmer, and stocks are being rapidly exhausted. Some holders are asking $\frac{1}{2}$ ct. per pound above the last market quotation.

Toronto, Ont., Feb. 16. Eby-Blain Limited.

CUBA.—Light-amber extracted honey in barrels, 60 cts.; amber, in barrels, 60. Clean average yellow beeswax brings 36.

Matanzas, Cuba, Feb. 13. A. Marzol.

FLORIDA.—There is no honey in this market at this time.

Wewahitchka, Fla., Feb. 16. S. S. Alderman.

BUFFALO.—Owing to extremely cold weather and unfavorable shipping conditions the demand for honey has not been very good for a short time past. However, with warmer weather and more favorable conditions of handling we expect to see an increased demand from now on, especially during the Lenten season. We quote comb honey, fancy white, $14\frac{1}{2}$; No. 1 buckwheat, $11\frac{1}{2}$.

Buffalo, N. Y., Feb. 20. Gleason & Lansing.

SYRACUSE.—The honey market here stands practically the same as at last quotations. Comb-honey stocks have been lowered generally, some having been sold to retailers at extremely low figures for its quality. We individually have nothing to offer to trade outside of city at present. Fancy comb honey brings \$3.60; No. 1, \$3.00. White extracted honey brings 9; light amber, in cans, 9.

Syracuse, N. Y., Feb. 20. E. B. Ross.

ALBANY.—The comb-honey market is very dull and slow demand. Altho honey is very cheap compared to other foods, it is considered a luxury now, and people are using their money to buy absolute necessities at abnormally high prices. Quotations are nominal, and subject to buyer's offer. We quote extra fancy comb honey, per case, 15; fancy, 13; No. 1, 11 to 12; No. 2, 10 to 11; white extracted honey, per lb., $8\frac{1}{2}$ to 9, good demand; light amber,

in cans, 7½, light stock; amber, 7. Clean average yellow beeswax brings 32 to 33. H. R. Wright.
Albany, N. Y., Feb. 20.

LIVERPOOL.—Honey has been in good demand since our last report. In London 1350 packages were sold out of 1715 offered, on the following range of prices: Jamaica, dark amber to pale, \$12.00 to \$15.12; liquid, dark to amber, \$11.64 to \$13.32. Cuban, dark to amber, \$10.80 to \$12.00; dark to pale, \$11.64 to \$13.32. San Domingo, dark to amber, \$11.64 to \$13.96; liquid, \$13.92. Honolulu, liquid, dark to pale, \$12.24 to \$14.08. Chilean, the total import for the last year into Liverpool was 14,340 barrels. The market continues firm at our last quotations. Californian is in good demand at an improvement on the last rates quoted. Beeswax is somewhat dearer, and very little is offering. An increase can be obtained in our last quotations. Sales have been made of Jamaica ordinary fair, at \$41.28 to \$41.88, per cwt.

Liverpool, England, Jan. 25.

Honey has been in good demand since our last report. Of Jamaica, 220 casks sold at \$11.76 to \$13.44 per cwt. ex-store. Of Chilean, 200 barrels, pile 3, sold at \$10.08 to \$10.32 per cwt. Beeswax market is firm—no stocks of Chilean on hand; value \$38.88 to \$43.74 per cwt. Taylor & Co.

Liverpool, England, Feb. 8.

MEDINA.—There are no new developments in the honey market. Stocks of extracted are undoubtedly picked up much closer than for many years and prices are firm thruout the entire country. Comb honey on the other hand has remained in somewhat slack demand and fair stocks are reported in all of the important centers, and considerable is believed to be in the hands of producers. We believe that it will be well cleaned up, however, before the arrival of the new crop.

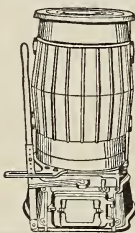
Medina, O., Feb. 21. The A. I. Root Company.

VICTOR and HOME VICTOR

Multiple System
Water Heaters for
House Heating

Heats bath and kitchen boiler too.
**ONE STOVE AND ONE FIRE
YEAR ROUND.** There is nothing
like it. Send for booklet.

S. V. Reeves, Mfr.
Haddonfield, N. J.



Established 1885

It will pay you to get our 50-page
catalog and order early.

Beekeepers' Supplies

The Kind That Bees Need.

The A. I. Root Co.'s brand. A good assortment of supplies for prompt shipment kept in stock. Let us hear from you; full information given to all inquiries. Beeswax wanted for supplies or cash.

John Nebel & Son Supply Co.

High Hill, Montgomery Co., o.

BEE SUPPLIES Send your name for new
catalog.

Dept. T. CLEMONS BEE SUPPLY CO.,
128 Grand Avenue, Kansas City, Mo.

BANKING BY MAIL AT 4%

Don't Take Risks

with your money.
Deposit it in this bank
where you are sure it
will be safe, as well as
earning 4 per cent interest,
compounded twice a
year.

Our conservative policy, honorable management, ample capital and surplus, together with strict state supervision assure security for every dollar.

Deposits may be sent BY MAIL in the shape of check, draft, money order, or the currency by registered letter.

Write for detailed information concerning our plan of BANKING BY MAIL at 4 per cent interest.

**THE SAVINGS
DEPOSIT BANK CO.**
MEDINA, OHIO

A.T. SPITZER, Pres.
E.R. ROOT, Vice-Pres.
E.B. SPITZER, Cashier.

ASSETS OVER ONE MILLION DOLLARS

BEESWAX WANTED

for manufacture into
"SUPERIOR FOUNDATION"
on shares (Weed process)

Our terms assure cheaper foundation
SUPERIOR HONEY CO., Ogden, Utah
Wanted: Extracted honey

Michigan Beekeepers

MARCH---This month you should decide whether you will produce the maximum crop from your locality.

You can get it if you go after it.

The necessary new equipment should be "ROOT QUALITY." Success comes easier with the best goods. We sell Root's Goods in Michigan. Let us send YOU our catalog. . . Beeswax wanted; 31 cts. cash, 33 cts. in exchange for goods for it delivered here.

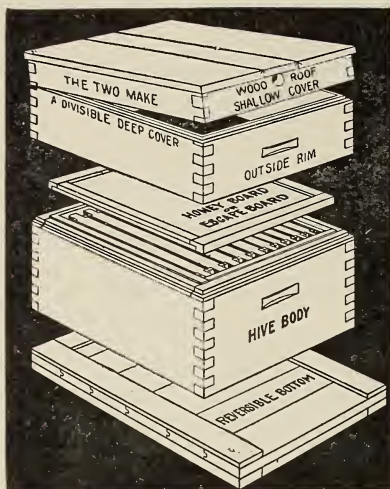
M. H. Hunt & Son, Lansing, Michigan
510 Cedar Street, North

Headquarters for Bee Supplies

Root's Goods at Factory Prices
for Ohio, Kentucky, Tennessee

We carry a large and complete stock of bee supplies, and are prepared to give you prompt service. . We have just received several carloads of new fresh supplies. . . Send for our catalog.

C. H. W. Weber & Co., Cincinnati, O.
2146 Central Avenue

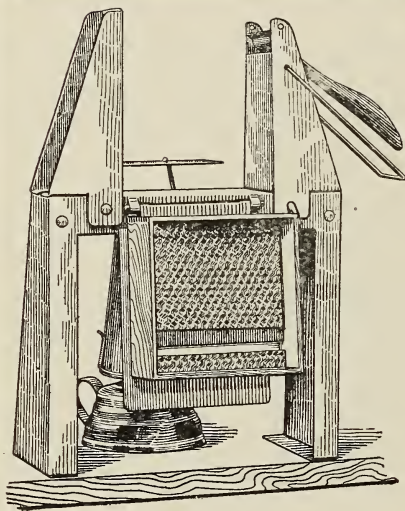


Protection Hives

Price \$13.75 for five hives, \$12.00 without outside rims, F. O. B. Grand Rapids; \$15.00 for five hives with rims delivered to any point in the U. S. A. north of the Ohio and east of the Mississippi Rivers.

Double wall with air spaces, insulation or packing as you may prefer. If you have had occasion to spend any time in a building single-boarded during cold weather, you can appreciate the advantages of double walls. Single-wall hives often do not provide sufficient protection during brood-rearing in the spring.

An apiary of single-wall hives was visited during fruit bloom; the weather was cool and no bees flying. Old newspapers were called for and the wrapping of the hives was about half completed when there was an interruption. Returning again in the course of an hour or so, it was found that the bees in the wrapped hives were flying freely while those that were not still remained inside the hives. It is reasonable to conclude that if 20,000 bees were required to keep up the temperature that 5000 were released for field and other duty by the added protection given. Protection hives cost only about \$1.00 more than single wall hives and are well worth the extra cost, which may be more than made up in a single season. Send for a special circular, 16 large illustrations.



Section-fixer

A combined section-press and foundation-fastener of pressed-steel construction. It folds the section and puts in top and bottom starters all at one handling, thus saving a great amount of labor. With top and bottom starters the comb is firmly attached to all four sides — a requirement to grade fancy. Increase the value of your crop by this method. H. W. Schultz, of Middleton, Mich., in writing us says: "Your section-fixer is the best yet; can put up 150 sections per hour with top and bottom starters." Price with lamp, \$2.75. Shipping weight 5 lbs. Postage extra. Send for special circular fully describing this machine.

Tin Honey-packages

A local wholesale house secured a carload of tin plate in September that was promised for April. Conditions are now even worse. When it is necessary to order tin plate a year or more in advance of the time it is wanted for use, advances in prices must be expected. The highest bidder will get the stock.

Freight at this time is very slow and uncertain. Prices are liable to advance. It would be a wise thing to secure your packages for the 1917 crop. Our three-year contract is giving us some advantage over general market quotations. Send us a list of your requirements at once. Our prices may have to be advanced again on March 20. We can supply the following 60-pound cans one and two in a case.

FRICITION-TOP TINS.	2 lb.cans	2 1/2 lb.cans	3 lb.cans	5 lb.pails	10 lb.pails
Cases holding	24	24	...	12	6
Crates holding .....	...	...	...	50	50
Crates holding	100	...	100	100	100
Crates holding	603	450	...	203	113

A. G. Woodman Co., Grand Rapids, Michigan

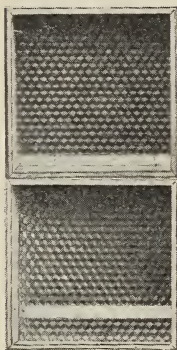
DO IT NOW WHAT?

Remember and follow the old adage,
"Never put off until tomorrow
what can be done today."

Last year many people put off ordering their summer supplies until late. Then they were disappointed in not receiving them as soon as ordered on account of delay, and because many others did the same thing. Now, we have six carloads of fine new stock that has just arrived, and we shall be greatly pleased to attend to any orders which you might wish filled.

Send now for our 1917 catalog with new prices. Prices in every line are soaring high, and if war comes will undoubtedly rise higher yet. Therefore, be prepared for the spring days when the bees swarm, and order now while you have a chance your 1917 supplies from ---

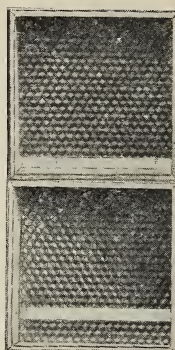
F. A. Salisbury, Syracuse, New York
1631 West Genesee St.



If you use full sheets of foundation in your sections and frames, you are wise, but--you are wiser if you insist on using--

Dadant's Foundation

Why? Read the following:



Dadant & Sons, Hamilton, Illinois.

Dear Sirs:—Looking the accounts over we still have 9 pounds of beeswax to our credit. Could you hold this, as we intend to ship more wax before next season? We will use DADANT'S FOUNDATION only as it has proved BEST by TEST.

Hebron, Ind., Nov. 16, 1914.

Your very truly,

Van Wyngarden Bros.

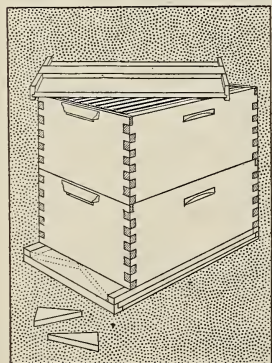
We have many customers who tell us the same thing. Try it yourself and be convinced.

For making Dadant's Foundation we need immense quantities of Beeswax

When you have some to offer, drop us a line and get our prices. We buy at all times and pay highest prices.

BEESWAX WORKED into foundation at reasonable prices. OLD COMBS rendered into beeswax on shares or for cash. Let us do all this work for you and save you time and money.

Dadant & Sons, Hamilton, Illinois

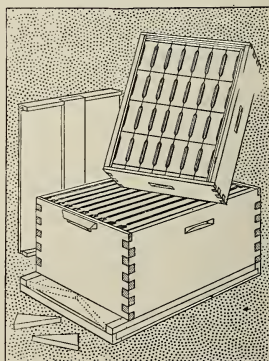


BEE SUPPLIES

We have everything in the supply line and keep an immense stock on hand so as to fill orders promptly.

OUR CATALOG—Lists everything of practical value to the bee-keeper. Several new articles listed this year.

Drop us a card and get a copy.



GLEANINGS IN BEE CULTURE

MARCH, 1917

EDITORIAL

WITH THIS ISSUE of GLEANINGS we inaugurate a new subscription policy—or,



**WHY THE
CHANGE
IS MADE**

rather, return to the original subscription practice as established by A. I. Root

at the time of the founding of GLEANINGS, and continued by him for years thereafter. This is the practice of discontinuing all subscriptions at expiration unless the subscriber expressly directs us to continue his subscription to such time as it is convenient for him to pay. This plan supplants our present plan of continuing all subscriptions for six months or a year or even longer, unless we receive the express order of the subscriber to stop his subscription. By the new plan we put the matter of continuance squarely up to the subscriber, stopping a subscription without putting the subscriber to the trouble of writing us if he does not wish GLEANINGS continued.

In a word, it is the better plan of never running one of our subscribers into debt without his definite consent.

The old plan of continuing subscriptions after expiration without order of the subscriber has long been a common custom of publishers. It is continued only because of custom. So many greedy and not-too-honest publishers have abused this old custom and persisted in sending their publications against the will and wish of the recipients of these cheap journals that today the custom has fallen into disrepute. Many proclaim it not only bad business but clearly dishonest to continue (without an order) a subscription after expiration and then to try to collect for it, and we have come to sympathize with this view of the general reading public which has thus been imposed on by greedy and dishonest publishers. At any rate, so very many protests have come to us against continuing GLEANINGS after expiration without an express order so to do that we are convinced that a large majority of our readers wish us to adopt the plan of stopping on expiration. When we say this

we would have our readers bear in mind that we have always notified subscribers at the expiration of their subscriptions and asked them to signify if they wished their subscriptions stopped. We have never been in the class of those publications that have continued subscriptions without notifying the subscriber. We never have knowingly or intentionally continued a subscription to any person who we thought was not willing to have it continued. But now we are going to be cleanly and clearly on the safe side of this proposition by *knowing* that our subscriber wishes GLEANINGS continued, either by his renewal or his express order to continue for a definite time.

Is there a reader of GLEANINGS who will not agree that this is the one and only right subscription policy?



MAY WE CALL our readers' attention to some things that have recently been said



**THEY SAY
IT HAS
HELPED**

concerning the results of national advertising of honey?

These comments

come from unprejudiced sources, and must serve to brighten the hopes of all honey-producers.

The *Domestic Beekeeper*, E. D. Townsend, editor, in its January number, says: "No one thing has had as much to do with the advance in price of table quality of extracted honey as the advertising of The A. I. Root Co. They have paid out as much as \$6000 for a single-page advertisement in the *Ladies' Home Journal*, followed up with smaller space of great expense. While it is to be expected that they will get their money out of the proposition, this advertising can not but help the demand for honey, which in turn will help every producer of extracted honey to secure better prices with a better demand."

The *American Bee Journal*, C. P. Dadant, editor, in its December number, says: "One of the most interesting talks (at the Illinois

convention) was that given by E. R. Root, editor of GLEANINGS, entitled 'Establishing a Trade Name in Honey.' Our readers know that The A. I. Root Co. has done a great deal of advertising of honey under the trade name of 'Airline Honey.' They have spent enormous sums, paying as much as \$6000 for a full-page advertisement in the October number of the *Ladies' Home Journal*. But the increase of demand for honey is well marked."

In a recent letter received from a large producer this was said: "Why didn't your company call on me for honey? I could have spared you one thousand barrels at 60 cts. F. O. B.; but the way you have stirred up the market, 65 cts. F. O. B. would not get much honey of a fine class."

The perfectly apparent fact is that today there is a better market for honey, more competition among buyers, and a better financial prospect before American honey-producers than ever before.

Has not national advertising of honey and the systematic and business-like handling of honey in new ways by big dealers contributed largely to this happy result? We believe that every beekeeper, everywhere, is coming to see this to be the fact.



THERE HAS been a general impression, partly supported by some investigation



BEES AND ALFALFA

work, that bees are not necessary for the proper pollination of alfalfa.

While it is possibly true that in some localities and under some conditions a proper seeding can be obtained without bees, the very construction of the blossom itself seems to argue that nature intended that the species *Apis mellifica* should play an important part in the development of alfalfa seed. An item in a recent issue of the *Orchard and Farm*, which certainly cannot be said to be prejudiced in favor of the honeybees, goes to show that they play an important part in the work of pollination.

It has been discovered that the honeybee is of even more importance to the alfalfa than the alfalfa is to the bee. The wonderful strength and speed of the bees take them long distances for their food, and they have recourse to a great variety of plants. But the peculiar construction of the alfalfa blossom renders it unable to fertilize itself, and its shape makes cross-fertilization very difficult. In the marvelous "balance of good" in nature, alfalfa, like thousands of other plants, is aided in its lease on life by the insect world.

It is not known just how many insects or birds assist this remarkable plant; but the honeybee is the

most conspicuous, the most industrious, the most eager, and, certainly, the most useful.

Mr. Coburn, in his book "Alfalfa" says that careful observations have been made of seed pods grown near colonies of bees, and also of those so far from any bee colonies that it was safely assumed no bees had visited the fields producing the pods. In every case it was found that those from nearby fields had from 50 to 75 per cent more seeds than the others, and that they were larger and more perfectly developed. In Colorado and Western Kansas, where bee culture has been greatly developed in recent years, it is found that the alfalfa seed crop in fields nearest to bee colonies is much heavier and of better quality than that of fields but a few miles away.

At the Kansas experiment station a small plot of vigorous alfalfa was covered just before coming into bloom with mosquito-netting supported on sticks. It was, therefore, known that no bees nor other insects could come into contact with the blossoms. Later a careful examination disclosed that the pods which had formed were entirely without seeds.

When any one makes the statement that one can get seed without bees he is probably acting under the impression that there are no bees in the locality. But if there is any place in the alfalfa country where there are no bees, where seed is being grown, we should like to have it pointed out. The beekeepers of the country are watching the opening-up of new bee territory everywhere; and as soon as alfalfa is well under way bees are rushed into that territory.

We have run across localities where fruit and seed growers say they do not need bees, because, they aver, there are no bees there; but in every case we have been able to find them in abundance and proved their presence. The only possible exception would be Pejarro Valley, California; and yet even there we found numerous colonies of bees. The apples grown, the Bellflower and the Downing, are self-pollinating; but no one can deny that colonies of bees scattered in this valley do have some influence. We cannot get away from the fact that nature, when she builds her flowers so they are just right for the visitation of honeybees, does seek or invite their attention. The special construction of the bees and of the flowers themselves shows that she plans that many of the fruits and practically all the legumes require bees for the proper development of the seed or fruit.



SO FAR, this has been an old-fashioned winter. In most localities in the North



WINTERING PROSPECTS

there has been a steady cold—neither very cold nor very warm. There was some severe winter weather along the last of January and first of February; but in all probability there will be no great winter

losses, such as we had three years ago, when a warm December was followed by severe winter cold. When bees start brood-rearing early in the winter, subsequent zero weather has a bad effect on bees wintered outdoors. This winter up to date, Feb. 10, has given us zero spells of only short duration followed by a general warming-up.

Bees are wintering well so far as we can learn. Our own are in most excellent condition. While they have been shut in the hives since early in December, and did not have a flight until Jan. 30, they seem to be in fine condition. There was but very little spotting of the hives after the bees came out in the air, and no indications of dysentery.



ALL BEEKEEPERS and fruit-growers of Indiana should at once write to their senators and representatives in the



**IMPORTANT
TO INDIANA
BEEKEEPERS**

State Legislature, urging them to support a bill introduced by Senator James Porter of Daviess County, which provides for the reorganization of the Indiana Horticultural Society and the change of its name to the Indiana Horticultural and Apicultural Society, a public corporation of the state. In addition to the beneficial reorganization that the bill provides for, an appropriation of \$10,000 is asked to aid the society in the development of horticulture and apiculture. Indiana fruit-growers and beekeepers need large appropriation for the advancement and protection of their business. Wisconsin appropriates annually \$8000 for the support of her horticultural society while Indiana appropriates only one-fourth as much. Beekeeping is given no encouragement by the State of Indiana except a meager appropriation for inspection work. Combining the two organizations and securing a larger appropriation with which to carry on the work will do wonders toward increasing the interest in these two very important industries of the state. Foul brood and San Jose scale are rampant, and beekeepers and fruit-growers should insist that they have better protection against these natural enemies.

Indiana beekeepers, write today to your state senators and representatives, earnestly urging them to support this bill that means so much for the betterment and furtherance of your business.

MR. R. F. HOLTERMANN, at the Ohio state convention, put himself on record as decidedly opposed to stimulating brood-rearing in the fall unless the colonies were below par. He believes a great deal of

damage is done by tampering with a normal colony. Feeding always exhausts the vitality of a colony, and the result is that the regular inmates of the hive are worn out and go into winter quarters in a weakened condition, dying some time along in the winter, leaving only a moderate force of young bees which may not be able to resist the cold. The prevailing idea, Mr. Holtermann said, that an ordinary colony cannot winter unless it has a large force of young bees, is a mistake. If a colony of normal strength has a good queen, with plenty of stores, let it alone.



MANY OF OUR large outdoor winter-packed colonies have glass tops over the brood-nest with packing material over the whole. The purpose of the glass is to enable us to take observations by very gently pulling back the packing at intervals during winter. If the work is carefully done there will be no disturbance.

In this connection beginners should be cautioned against pulling open their colonies during mid-winter. If examination can be effected without disturbing the brood-nest, as when the glass top is used, well and good.



ALFALFA YIELDS HONEY readily in the irrigated districts of the far West when it rarely does so in the East. The statement was made at the New Jersey convention, that alfalfa in a dry season

**ALFALFA
HONEY IN
THE EAST**

on light land will yield honey when in a wet season on heavy land it will fail to do so. GLEANINGS would like to inquire whether this condition has been noted by others in the East or West. It is certainly true that alfalfa yields some honey in certain parts of New York and New Jersey; but as a honey-yielder in the eastern states it is generally regarded as a failure.

IT is evident that the business of selling bees in combless packages is growing by leaps and bounds. It is taking the place of shipping colo-

nies of bees and nuclei; and it will probably do away with shipping bees in carlots in their regulation hives on combs. A careful analysis of the express rate on bees in combless packages and the freight rate on colonies of bees in carlots shows that the former is much cheaper and less hazardous. See GLEANINGS for Feb. 15, 1916, page 136. At one time the movement of colonies in carlots from north to south and back again promised to be quite a business, because it was thought that the same bees could produce a crop of honey in the South and then be shipped north and catch another crop, and perhaps a third crop further north yet, later on. Some successes were achieved when conditions were favorable; but in most cases the movement of the bees by freight extreme distances has been a losing venture.

It is now apparent that the beekeepers in the Southland can in some cases secure a crop of honey and then ship the bees north by express in pound packages so that they can catch a crop of clover or basswood.

After having attended a chain of bee conventions thruout the northern states we ran across numerous beekeepers who have received bees in pound packages from the South about the first of May, built them up into fine colonies, secured a crop of honey, and enough more to put them into winter quarters in fine condition. This has been done, not once but many times. In a few cases a single pound of bees received in the North about the first of May has built up to a full colony, secured a surplus of 100 lbs. of extracted honey, and then went into winter quarters as a full-fledged colony with plenty of stores. It is evident that the pound of bees and a queen

BEES IN POUND PACKAGES

*Bees by the Pound from the South
vs. Full Colonies Bought Locally
for Making up Winter Losses*

By E. R. Root

in these cases paid well on the original investment. Others who have secured bees in lots of two and three pounds later in the season, got a

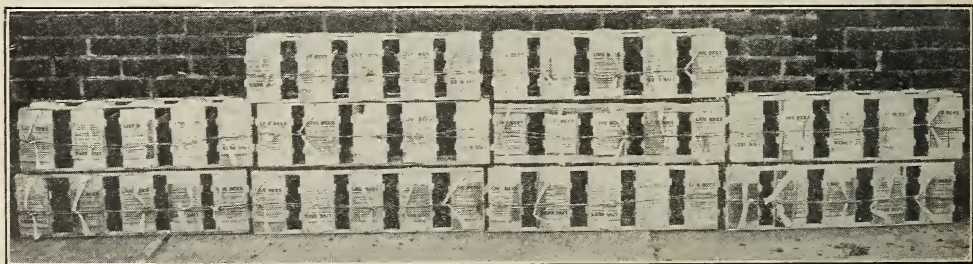
crop that more than paid the first cost.

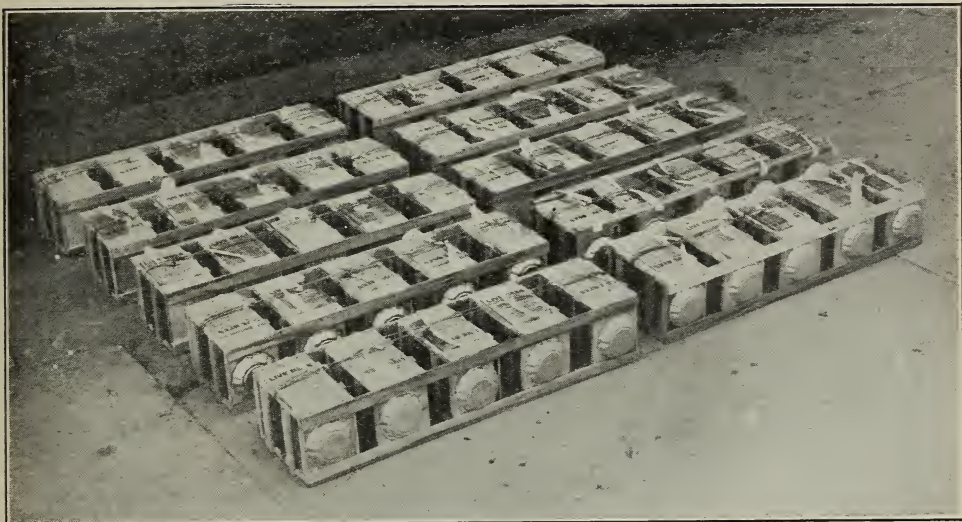
The pound-package business by express northward early last spring was so successful that some beekeepers were seriously considering the question of letting their old bees die off after they had secured a crop of honey, extracting the combs clean, putting away the hives, combs, etc., then filling them again the following spring with bees in pound packages from the South.

Said one large producer in Canada who does not wish to be quoted as yet, "I have 25,000 lbs. of fine clover honey in my hives where bees are now wintering, and this honey would now net me 11 cts. a pound. I am almost beginning to feel that I could extract this, take the money, and buy bees in pound packages next spring to put on my combs.* No, I will not do it just now; for may be I cannot buy the bees when I want them at a low enough price."

Beekeepers who furnished bees in pound packages last spring were swamped with orders, and many northern beekeepers were unable to get deliveries. Anticipating this difficulty, one beekeeper is tentatively considering the question of going south this winter and buying up bees, run them for increase, and then ship the bees back to himself in his northern home in combless packages. He would leave enough honey in the hives in the South to take care of the queens, brood, and a few bees, and put them in charge of a man to build them up for the next season.

* This man has from 40 to 50 lbs. of honey to the hive—call it 40 lbs. This would mean \$4.40 This amount invested in bees and queens in a combless package would go a long way toward a new start; but it would hardly be enough to make the kind of colony by weight that the 40 lbs. of honey would give.





Fifty pound packages of bees ready for shipment.

An effort is being made now to get bees in pound packages admitted to the privileges of the mails. They could be sent by parcel post in many cases cheaper than by express. If we could once get Uncle Sam to enter into competition with the express companies the express rate on bees would drop at once.

The advantage of combless bees by express over colonies in hives on combs by freight is in the saving of time. The least time that a carload of bees can be moved by freight from the extreme South to the North is a week, and usually longer. The journey is hard on the bees, and the man who goes with them must, under the present ruling, pay his own transportation. Bees can go by express from south to north in about three days, or considerably less than half the time by freight.

There is another distinct advantage and that is, combless bees cannot carry brood diseases. This of itself is very important.

In the early part of the year, before the weather becomes hot, the bees can be sent in pound packages with practically no loss; but during July and August, when the weather is extremely warm, there may be a 50 or even 75 per cent loss of bees in pound packages, altho our loss in average distances in hot weather has not exceeded 10 per cent. However, we have not been enabled to get bees in combless packages from the South in hot weather in satisfactory condition after arrival. On an average we have had something like 50 per cent loss.

But there is no difficulty, providing one gets his bees from a reliable shipper, of

getting them in pound lots in *the early part* of the season; and that is just the time of the year when bees will be moved, and when, too, the largest returns can be secured.

We anticipate that the following year will see the largest movement of combless bees from south to north that was ever known. GLEANINGS offers a suggestion to those who are furnishing bees in pound lots, to be prepared for a big trade; and while you are about it, make the price high enough to include all expenses, replacements, and advertising.

If the combless bee-package ever gets to be a success (and it looks like it now) there will doubtless be legislation, both federal and state, prohibiting the movement of bees on combs. If every one would use the bee-cage candy made of invert sugar instead of honey there would be absolutely no danger of transmitting disease, either in pound packages or in ordinary mailing-cages for the transmission of a queen, with a dozen or so attendants.

Later.—About the time that the above was written, the following questions were submitted. In order to get the benefit of several who had had experience along the lines suggested, we sent copies of the questions to a number of representative beekeepers. Their replies follow the questions on the next page. To the different views expressed we may add this: The fact that many northern beekeepers have bought bees by the pound in the past and are planning to buy more in the future, is the best proof that the practice is a paying proposition.

WILL BEES FROM THE SOUTH GIVE AN EARLIER START?

1. Can an experienced beekeeper, starting anew, near Washington, D. C., have more populous colonies for the white-clover harvest at no more expense, by securing young queens and pounds of bees from the extreme South, than by buying strong colonies with heavy stores in his neighborhood as early as their condition can be ascertained—the object being to have all colonies every bit as strong in May as if the apiary had been established for years? In either case, drawn-out combs or full sheets of foundation would be added to the brood-nest and they would not lack at any time, up to the time of the honey harvest, either an abundant supply of thin syrup or damp or raw sugar or bee candy to sustain brood-rearing. They would also be kept warmly covered with top packing and tar-paper covering, but with plenty of room inside. It is assumed that as bees in the South would have commenced to breed earlier than those purchased here, there would be a larger percentage of young bees, and they would dwindle less and build up and increase faster under stimulative feeding.

2. Could southern bees, shipped to Washington, be made equal to full colonies secured in the neighborhood at a considerable saving in cost?

3. In buying bees from the extreme South, would it be best to secure one, two, or more pounds of bees with each queen, or would it be better to buy three or four frame nuclei, leaving out all consideration of the foul-brood question?

4. How early should southern bees be shipped to Washington? and how early must one commence stimulative feeding with southern bees provided they have plenty of bee candy in reserve?

5. How early is it necessary to commence stimulative feeding of the neighborhood strong colonies provided they have plenty of stores?

6. After filling the single brood-chambers of the southern bees with combs of brood, how should the second brood-chamber full of drawn-out combs be added? Should the chambers of empty brood-combs be put underneath, or one half of the brood put above the other half? if so, in the center or next to the sides? If brood-chambers are added (or hive bodies) full of frames having full sheets of foundation, should they be arranged differently from the drawn-out combs? Why?

7. Is it safer to feed raw or damp sugar or candy early in frame-feeders than to give syrup once or twice a week? How

early is it advisable to feed warm syrup every night to push brood-rearing?

8. Would it not be well to use a different method to build up the strong colonies with heavy stores, bought in the neighborhood, to cause them to fill two chambers with brood before the white-clover flow? What would be the difference?

9. What is the comparative cost of two lots of colonies bought in the spring, one lot from the extreme South and the other from the Washington neighborhood? Of course, after the main honey-flow the queens may be replaced by those raised in large colonies from a record honey-producing strain acclimated to northern winters, and possibly of the kind that will keep two or three brood-chambers filled with brood at the desired time.

SAMUEL CUSHMAN.

Baltimore, Md.

THE OPINION OF A SOUTHERN BREEDER.

Question 1. In case of one-pound clusters of bees I would say no. Two-pound clusters put on combs containing plenty of honey about April 20 would probably be as strong by May 30 as local colonies. On the other hand, if put on comb foundation and the bees were fed to produce combs, I should say no.

Question 2. Perhaps not. But the question of local prices for colonies, the quality of hives, frames, combs, and queens should be considered.

Question 3. If all of the surplus honey comes early in the season it would be best to buy two-pound packages. If the honey season is late, possibly one-pound clusters would get as much honey. It is presumed that there are combs for the above. If there is only comb foundation it would be better to buy three-frame nuclei early, or two-pound clusters without combs at the commencement of the first light honey-flow.

Question 4. The bees should be bought as early as conditions will permit in order that they may have all the time possible to build up. Perhaps April 18 is as early as they could be obtained from the South. The bees should be fed as early as the weather warms up enough for them to take the syrup. Care should be taken not to waste feed nor to permit robbing to get started.

Question 5. It is not wise to spend too much energy and money in giving bees something they do not need. It is hard to improve on honey in the comb as a stimulative feed.

Question 6. One comb of sealed brood

should be taken from the brood-chamber, all the other combs of brood being drawn together, and an empty comb put into the space left. The comb of sealed brood should be put in the center of the second story, the rest of the space being filled with comb.

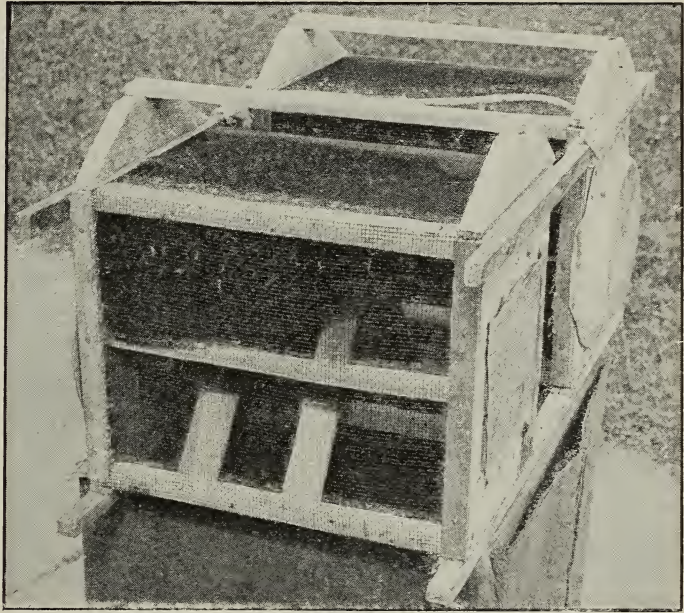
If desired, two combs of sealed brood may be taken from the brood-chamber and replaced with frames of comb foundation, a comb of brood being placed between the foundation. The brood-chamber should then be left as a one-story hive. The two combs of brood removed should be put in the center of a second story, the rest of the space being filled with combs of foundation. This second story should then be put over a brood-chamber that is full of brood and bees. In ten days two combs of brood may be taken from this two-story hive and replaced with frames of comb foundation. These two combs of brood should be put in the center of an empty body and the space filled up with frames of comb foundation, this body then being placed over the brood-chamber from which the two frames of brood were taken ten days previous. These colonies should not be allowed to suffer for honey.

Question 7. I prefer warm syrup in frame feeders supplied as early as the bees will take it up without much delay.

Question 8. If any building-up were necessary I would use the same plan given in question 6.

Question 9. Not knowing the cost of full colonies of bees in any given locality, I can not compare prices. One would have to consider the prices of bees by the pound; also the prices of hives and fixtures. In buying bees by the pound, and new hives and supplies, one secures a uniform desirable outfit which will give pleasure and satisfaction as well as profit. This is not ordinarily the case when buying colonies scattered around locally.

This question, 9, seems to imply that certain queens are acclimated to northern winters. The quality of a queen is determined



W. D. Achord's cages have two or three times the ventilation of the regular cages for holding the same number of bees.

by the strain of the bees, the method of producing them, and nectar conditions, assisted also by atmospheric conditions. Good and poor queens are produced north, south, east, and west. Generally speaking, because of the long period of warm weather, bees and queens can be produced cheaper in the South.

W. D. ACHORD.

Fitzpatrick, Ala.

A NORTHERN CUSTOMER'S EXPERIENCE.

Question 1. In the spring of 1916 I tested side by side five eight-frame colonies bought at home and five five-pound packages of bees bought in Louisiana. My conclusions are that the colonies bought at home paid the best; but the five-pound clusters of bees were put on sheets of foundation while the full colonies had drawn combs well filled with honey of good quality. All ten arrived at my home in Illinois on May 1, and were fed $\frac{3}{4}$ of a pound of thin syrup daily for the next 30 days. All ten had good queens, and all received like treatment. I could see no difference at the end of the time in the strength of the colonies. They were run for bees, and all were used in June for nuclei shipments, so there are no figures available as to honey-storing. I consider packing on *all* sides of great value, and tar paper, on top packing alone, worthless.

Old colonies did not dwindle more than others. I assume that the bees in the packages had already largely seen field service in the South before shipment.

Question 2. I do not think that package bees can be made equal to bees purchased at home at any saving of cost whatever, provided not more than \$5 per colony is paid at home. I am assuming that the packages are figured at 90 cents per pound in lots of 100 or more pounds.

Question 3. Assuming that Washington, D. C., has about the same spring climate as Chicago, Ill., bees should arrive not later than May 1. Fruit will then be in bloom, and the clover flow will start by May 25, normally. I do not think less than *four* pounds of bees should be bought for each eight-frame hive, especially if they are to be put on full sheets. The larger clusters can do far more in the cold nights of early spring. I do not advise buying nuclei on combs to ship as far as Washington or Chicago, as express charges are prohibitive.

Question 4. May 1. Start stimulative feeding from the day the bees arrive, and keep it up not less than one pint daily. Candy is a poor stimulative feed compared to liquids.

Question 5. My experience in feeding the ten colonies last spring in addition to the stores of their hive (in the five bought at home), proves to my satisfaction that it does not pay to stimulate by feed where good stores are in the hive.

Question 6. I think the second story should always be added above, especially if it contains full sheets of foundation. Never, under any circumstances, divide the brood in the spring in the locality of Washington or Chicago. The temperature last spring went down to 15 degrees F. about May 10. A queen that is not laying well in the second story by May 25, even if full sheets of foundation were given, and if not much feeding is done, is absolutely no good, whether in a full colony bought at home or in a five-pound package.

Question 7. Sugar and candy are not good for stimulative feeding compared to liquid feed. However, I must admit little experience feeding candy or sugar. The feed should always be given over the cluster in early spring, preferably with the pepper-box feeder and the cluster, feeder and all covered well with several layers of cloth, such as burlap. I am sure daily feeding is preferable to weekly or semi-weekly feeding.

Question 8. The only difference I would make with full colonies bought at home would be, not to feed for stimulation, and to do nothing to the bees except, possibly,

to score some of the sealed honey next to the cluster once or twice a week. Doolittle's "millions at our house" still stands.

Question 9. Here are some comparative prices: Full colony bought at home.

To 1 colony (two supers, eight-frame)	\$5.00
To ½ pound sugar daily, 30 days, at 3½ cents .....	.50
Total....	\$5.50

Pound packages.

To 5 pounds of bees at 90 cents per pound	\$4.50
One untested Italian queen.....	.75
Express on five-pound package from Louisiana .....	.75
Eight full sheets foundation, frames etc.	1.00
To sugar, same as above.....	.50
Total....	\$7.50

This charges no labor and expense on *first* body only, figuring the beekeeper has the empty hive to start with for the bees in the combless package. The sugar was some damaged in shipment, and was a bargain at 3½ cents.

Manager, Quality Hill Apiaries.

* * *

A CHANCE REPORT OF TWENTY POUNDS OF SOUTHERN BEES.

In February, 1916, I ordered 20 lbs. of bees from a breeder in the South, with an untested queen with each pound package. The bees were shipped April 20, and they arrived here April 25 in fine condition. It happened to be very cold at that time so I had to keep them in the house for three or four days before setting them outdoors.

On their arrival I immediately put them in the hives they were to occupy, leaving only four frames in the hives—two of sealed honey while the others were empty combs. It was so cold that the bees did not leave the cages very readily, so I shook them out of one of the cages. They were so hard to get out that I decided to let the rest come out themselves.

Five or six days after they had been outdoors a warm day came so that I could look thru the hives to see whether the queens had begun to lay. I found that two of the queens were dead—at least they were gone—so I wrote for two more queens with bill for same. They came by return mail, but there were no charges.

Well, the weather continued wet and cold all thru April, May, and June; but every

time it warmed up the least, out the bees would come for work. I never saw any other bees work when the weather was so cold and wet, and the queens kept right on laying, cold or no cold. On June 19 one of them cast as large a swarm of bees as I ever saw.

Clover as well as everything else was late. It did not begin to bloom till about June 20; but I never saw its equal. In July the weather was perfect.

The fall before, I put twenty-five colonies in winter quarters. The following spring I had twelve strong colonies—nine weak ones and four that were dead. By July there were just fifteen of them, and only half of these were strong enough to be working in supers. Now, it seems to me that if I had killed the twenty-five colonies in the fall, and extracted the honey out of eight of the frames of each hive, and saved two frames of honey to give to the bees to be purchased from the South, I would have been money ahead. Bees sent from the South are all young and hardy, while the ones we winter thru are old and die off rather fast in the spring.

Aitkin, Minn.

WM. CRAIG.

A VERY SUCCESSFUL EXPERIENCE.

I had heard considerable discussion on this subject—some favorable and some otherwise, so I decided to try the experiment for myself. For me it has been a successful venture, and my experience has led me to believe that no professional beekeeper who may have good hives and equipment on hand can afford to allow them to stand idle during the season. Of course I realize that all who order bees in combless packages from the South may not have as good success as I did, also that I might not have as good luck another time.

Here are some of the things that contribute to the success or failure of a venture of this kind. First, time of arrival; second, buying from a reliable man. It is also necessary to have a good stock of bees with good queens.

In view of the complaints I have heard I believe one should be careful about giving a large order to an entirely new man unless he can furnish satisfactory reference guaranteeing pure stock and safe arrival. Early last spring I wrote to a man in the South who was advertising Italian bees in combless packages. This led to my ordering 25 one-pound packages with untested queens included, the price being \$2.50 per package. These were to be delivered between the 1st and 10th of May, safe arrival guaranteed.

May 10 arrived, but no bees. I was anxious for them to arrive, as we all know that time at this season of the year is precious to the beekeeper. About that time I received a letter from the dealer advising that he would ship them in a few days. As it turned out it was well that they did not arrive at the time stated, as it was a very late spring and we had a snowstorm on the 10th of May.

Well, the bees arrived on the 20th, and the weather was warm and fruit-trees were just coming into bloom. They were shipped in wire-cloth cages with feed and water, and they arrived in good shape with but few dead bees. The cages containing the queens were fastened to the top of the packages so the bees could cluster around the cages. Twenty of these I placed in hives on frames of empty combs, a few of them containing a little honey. Some were hives in which bees had died in the winter. As the weather was warm the bees went right to work on fruit-bloom, and I did not find it necessary to give any feed. As an experiment I placed the other five in hives containing full sheets of foundation, supplying no feed.

In a day or two I found all the queens laying but two, which were missing. I wrote to the dealer, and he immediately sent me two queens to replace those that were lost. This was a great satisfaction to me, as we all like to have a dealer do as he agrees.

The nuclei built up fast, and on June 25 I gave comb-honey supers to the 20 placed on empty combs. The clover flow came about the same time. The bees went to work in the supers, and about July 5 I found it necessary to add another super on all but two of the 20 placed on empty combs. The other two swarmed—one July 4, and the other the 6th. As I had clipped the queens I caged them and placed the cages containing them in new hives containing full sheets of foundation. After removing the old hives I placed the caged queens on the same stands, and the bees ran in and took possession of their new homes and seemed to be well pleased with the change, and went right to work. Fifteen colonies finished two supers each, and three of them finished three supers each. The other five that were placed on full sheets of foundation made very little surplus honey, but built up well and took in plenty of honey for winter stores. The two that swarmed also built up well for winter.

From my investment I have 27 colonies in good condition for winter, and enough surplus honey to pay the first cost of the 25 packages of bees. Figuring the 27 colonies at \$5.00 each gives me \$135 for my work, besides the experience, which is worth some-

Continued on page 223.

TWENTY -

two years ago I started with one colony and today have 532, with honey - houses, supplies, and a full equipment for their operation. I

lived in town near the head of a lake, and kept the bees at home for a few years; but in the spring the bees would spot the neighbors' clothes on the line, so I decided to move them about a mile south, where my father owned twenty acres of land. I had previously noticed that the bees flew southward for their nectar; also that they crossed this lake. This move resulted in a larger crop of honey, due to being closer to the pasturage and to the saving of many bees that were lost in crossing the lake, in spite of the fact that it was not very wide.

I wintered my bees from the start in a long winter case in which the bees were placed and packed. With the long cases which were first used, in which the colonies were placed side by side, all facing the same way, I also used the square case containing four colonies, two facing the east and two the west. The long cases were discontinued in favor of the four-colony cases, the latter proving the better in every way. I learned that the bees wintered better when packed for winter early, before the fall rains set in. This necessitated early feeding for winter. Perhaps the early feeding has something to do with the successful wintering. I have always used the Miller feeder, and fed the whole amount required at one feeding. At first I did not have enough feeders to feed all the colonies in one yard. There was some robbing, and I always lost some colonies. I tried feeding all colonies at one time. This helped somewhat, but not until several seasons' experimenting did I hit upon the right way to feed to avoid all robbing. By my plan described below, even tho there is no honey coming in at all, the bees will, as a rule, pay no attention to syrup spilled on the covers or ground.

The entrances are contracted about the time the white honey-flow ceases; the feeders are placed on the colonies to be fed, each hive having been weighed, and the amount to be fed marked upon the cover. The feeders are left for a day or two if possible, so that the bees become familiar with their presence, then several tubs placed at one side of the

FROM 1 COLONY TO 532

*A Few Methods I have Adopted,
and Conclusions I have Reached
After 22 Years with the Bees*

By Ira D. Bartlett

care being taken to fix these so the bees will not drown. Usually about a day is required to get the bees all working nicely on the syrup, then the feeders are filled with the required amount of syrup for winter.

The tubs must be filled daily until all the syrup in the feeders has been taken down, when the feeders may be taken off (I use escape-boards in doing it), and the outside feeding discontinued. Everything following will be absolutely quiet, as tho a big honey-flow had been on. This is one of the best things I have learned. I use this plan even where neighbors have bees close by, for my bees get more benefit than the others do.

Weighing-machines of various kinds are of absolutely no value. My plan is to take off the cover, pull the canvas quilt back, quickly judge the number of bees, kind of combs, etc., and then judge the weight by lifting the back of the hive only. I can make a better estimate of the amount to be fed than by placing the colony on scales; and I can do the work in one-tenth the time. The main thing is to be sure to give a plenty. My average feed per colony, in excess of what they have, one year with the other is 12 lbs. of sugar per colony for winter, which makes 18 lbs. of thick syrup. You say that you do not use the canvas quilts. I would not do without them, as they enable me to make easy and speedy examinations.

I employed this same method of outside feeding one spring to build up some forty very weak colonies that I had taken home to the cellar to winter on account of their being so weak, and by the opening of the white flow they were in better condition and gave me more surplus honey than the other colonies that were in good shape to start

with in the spring, and therefore received no special care. In this case I used two tubs and reduced the feed to seven parts of water to one of sugar, the bees using it apparently as a watering-place; but the results were surprising.

I produced both comb and extracted honey at first, succeeding well; but wishing to extend my

apiary are filled with a syrup composed of about one part of sugar to five of water, thoroughly stirred. Floaters of thin strips of pine are placed on top.





Feeding very thin syrup outdoors with thin boards for floats.

bee business I was confronted with the swarming problem. I studied the various conditions that were calculated to cause swarming, and worked out a system that has proven very successful in the production of extracted honey. During the season of 1916, in this vicinity, every one's bees swarmed, and continued to swarm, except mine; so I am pretty sure the system is all right.

HOW I CONTROL SWARMING.

I use full sheets of comb foundation in the brood and extracting frames, to avoid the raising of drones in large numbers, which is one of the causes of swarming.

I increase the size of the entrances just before the honey-flow opens, giving plenty of ventilation. I give a super of combs, cut deep when extracting, so as to be just right for the queen to lay in, just as soon as the bees cover the combs in the brood-nest nearly to the outside, giving the queen abundance of laying room. I give another if required before July first.

July 1 a queen-excluder is placed between the brood-nest and supers. July 4 or 5 the queens are easily found, and placed below the excluder if they are not already there. This date is selected for two purposes: First, the brood-chamber at this time is usually right for the queen, she having been above for several weeks; and the honey-flow being at its height, the bees naturally fill cells with honey as soon as the brood emerges. Thus conditions are still normal, the queen uncrowded, and there is plenty of storage room. Yet if it is a very strong colony an additional super is given at this time, and still another later if re-

quired, putting a final check on swarming. The other reason for selecting July 4 or 5 to put on the excluders is that by the first of August all brood is out of the supers; and as the white flow has just ceased, the honey is immediately taken off with bee-escapes.

The above plan is figured out for this vicinity and for our particular honey-flow. In other localities the dates would have to be changed somewhat.

TAKING THE HONEY OFF THE HIVES.

As I use the queen-excluder I can easily get the bees out of the supers with the Porter bee-escape. It takes but a fraction of a minute to insert one. I use enough of them for the whole apiary, taking off but one super at a time with each escape.

To economize in time, all honey is taken off before extracting. I heat the honey in the extracting-room with oil-stoves. This makes uncapping and extracting easy; and as there are no bees in the room it is much more pleasant working.

In time the tops and bottoms of brood and extracting combs become more or less covered with propolis and wax, and burr-combs will be run from one comb to another. In the spring, when the colonies are light, there is no honey in these burr-combs, and they are easily cut out and the tops of the brood-frames scraped clean, making it much easier to work in the hives later on. I find it very profitable to do this, and to clean all extracting-combs likewise. The amount of wax the scrapings contain will pay well for the time expended. What appears to be clear propolis is about half

wax. This work is hard the first year; but after that it is easy.

WHAT TO WEAR IN THE BEEYARD.

Do you wear black in the apiary during the hot weather? Try wearing a pair of white overalls and jacket and note the comfort. I have learned that the wrist is a bad place to get stung, and I avoid it entirely by wearing a sort of sleeve protector made from 8 or 10 oz. canvas which extends from the palm of the hand to the elbow. I make it to fit snugly about the palm with a slit for the thumb. I fasten it with a safety-pin to the sleeve.

A PLAN WORTH HUNDREDS OF DOLLARS TO ME.

Shortly after setting out the bees at one outyard where they were wintered in the cellar, I found that they had drifted considerably, and that there were nearly one hundred colonies that had but a handful of bees each. The bees in this apiary had wintered very poorly, and only a few came thru with many bees; but as a rule the



Try wearing white overalls and jacket in the apiary.

queens were good. I looked them over by examining from the top only. Where I was sure they would not hold out for a little longer until it warmed up, I helped them by giving a comb of bees from the strongest colonies; but I lost quite a few at that. Just as soon as it was warm, and pollen was coming in freely, I examined every colony, marking the extra strong and extra weak ones, and also the medium strong and medium weak ones. The average colonies I left as they were. During the day, when the bees were flying, I exchanged the places of the extra strong with the extra weak if the weak colony had a good prolific queen, and also exchanged the places of the medium strong with the medium weak colonies. This had a tendency to equalize the number of bees in the colonies. Altho the real weak ones appeared the stronger for a short time, the strong ones with the extra brood soon caught up. A little later I made another shift as above, and equalized them again. The result was wonderful; and, altho I expected little if any surplus, I got 100 lbs. to the colony. After seeing the results from the first exchange, I worked it in the other yards with equal success.

After exchanging the weak and strong colonies, in a few days I examined them to see the result. The once strong colonies had but few bees, and I suppose what were left did double duty in caring for the brood, as did also the young when it emerged, for they cared for the brood all right. Here was my only fear, as the queens were not hurt a bit.

In the weak colonies that had good prolific queens, with the aid of the extra bees these queens laid to their limit, and in a few days gave the bees all they wanted to do—at least it so equalized the bees that they were all given employment in rearing brood, and the result was that nearly every colony was in very good condition for the harvest. The honey-flow being somewhat late helped; but still I am sure I benefited much. I am going to test the plan again next season. My Ford car makes short cuts between yards, and carries a wonderful lot of supplies. I expect to use a trailer next season. I believe it pays to perform one's work systematically, completing one job before starting another, and doing each little operation the same each time, so that it becomes automatic. I use every device possible for expeditious work, always use nailing-forms for nailing up hives, covers, frames, cases, etc. It makes the work easier, and I accomplish so much more.

I try to keep my apiaries spick and span, and my honey-houses in a presentable con-

Continued on page 223.

ONE would almost think that the title as above given would indicate that the A. I. Root Co. had designed a new winter case; but the fact is, the case in question is the invention of C. H. Root, of Red Bank, N. J., who is in no way connected with the Roots at Medina.

While we were attending the New Jersey convention a number of different beekeepers mentioned the Root winter case. At first we were a little puzzled to know what they were referring to. Finally it developed that it was not a Medina affair but the invention of C. H. Root, one of the largest honey-producers in New Jersey, and an enthusiastic beekeeper—a man of an inventive turn of mind, and a mechanic withal.

After a spirited discussion on wintering and winter packing, several beekeepers asked if we had seen the Root winter case. So much was said in its favor that we were interested and asked to see it.

Mr. E. G. Carr, the secretary, said that at the New Jersey experiment apiary he had had a number of these Root cases, and

THE ROOT WINTER CASE

*A Design Perfected by C. H. Root,
of New Jersey, whereby there is no
Loose Packing Material*

By E. R. Root

suggested that those of us who were interested might go out to the experiment yard the following morning, which we did before the morning

session was called to order.

The subjoined illustration will give the result of our visit. Fig. 1 shows Mr. C. H. Root standing back of his winter case as dissected and removed from the right-hand hive in the foreground. Fig. 2 shows a closer view of the double-walled case that surrounds the brood-nest. It will be noted that it is made of $\frac{3}{8}$ lumber, with a recess cut out of the front to provide for an entrance.

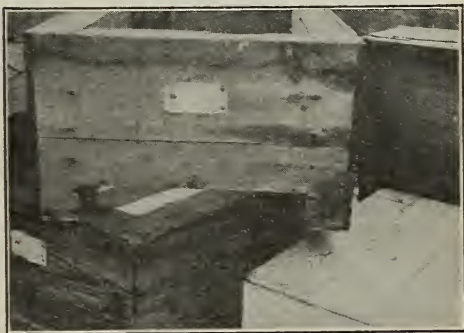


Fig. 2.—Detail of the C. H. Root winter case.

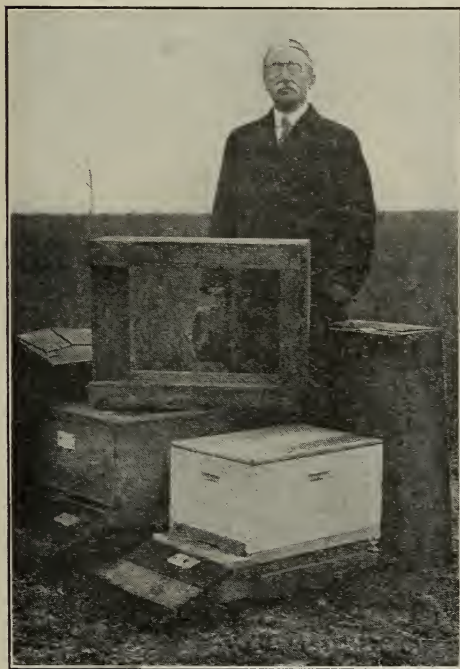


Fig. 1.—C. H. Root and his winter case.

Mr. Root is a thoro believer in winter packing, even in as mild a climate as that of New Jersey. To that end he not only regards it as important to have the sides and top of the hive packed, but even the bottom as well. The single-walled hive rests on a hive-stand which is filled with packing material when the hive is set on top.

The case surrounding the brood-nest as shown in Fig. 2 is double-walled with three-inch packing between the walls. The one shown in the illustration is made up of cheap lumber; and while it is not of the exact detail recommended by Mr. Root, it shows very well the principle. The ring that surrounds the brood-nest makes a nice and close fit; that is to say, there is just clearance, and that is all, between the hive and the surrounding case. It is deeper than the inner hive by about two inches.

It will be noted in Fig. 1 that there is a cleat nailed on the side of the hive-stand. There is supposed to be a corresponding cleat on the other side and one in the rear.



Fig. 3.—A few New Jersey beekeepers. From left to right, R. D. Barclay, C. D. Cheney, J. L. Dubree, W. A. Veseillus, Corsom Poley, E. G. Carr, C. H. Root, and W. E. Thorndyke, of New York.

This cleat should extend clear around the hive-stand without a break except in front. The double-walled case is then slid down over the hive resting on the above-mentioned cleats.

The recess in front provides for an entrance; and when the case is in place its top is flush and even with the top of the hive inside. A double-walled cover that telescopes over the winter case gives the necessary protection on top. It will thus be

seen that the colony has packing on top, bottom, sides, and ends.

When it is necessary to put the bees into winter quarters, Mr. Root explained that he can prepare a whole apiary in a very short time.

The only objection to this style of winter case is the expense and the necessity of having the hive and the outer case of such an exact size that the one can be slid over the other without sticking or catching.

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Fig. 4.—The apiary at the New Jersey Experiment Station.

Conversations with Doolittle

Mr. Albert Szukiewicz, from Brazil, desires me to answer the following questions:

"How do you tell when bees intend to supersede their queen, from swarming indications?"

When bees have the "swarming fever" it generally comes near the beginning of some copious flow of nectar, with the hive comparatively well filled with bees of all ages, combs filled with brood, and many young bees emerging daily. Queen-cells without stint often 15 to 20 are started with eggs and larvæ in them—while the bees cluster quite thickly over them. Most of the colonies in an apiary, which are strong enough in bees, will prepare for swarming at about the same time, or within 20 days, so that we have what is termed the "swarming season." A case of supersedure is liable to happen at any time when there is some brood in the hive, but more especially at the end of the main flow of nectar, when bees first show a disposition to rob, as at this time, after the stress of the breeding season is over, queens may fail rapidly. In a supersedure case the bees rarely start more than two or three queen-cells, and generally only one at first, and rarely have more than from two to five, the last one being only just started with an egg in it, while the first one may be fully ripe. In a case of supersedure the bees pay very little attention to these queen-cells except to supply them abundantly with royal jelly, allowing the mother-queen to go about them as she pleases; and often the first one emerging becomes fertile and laying, with the mother doing the duties of the hive as far as she is able.

"In your book, *Scientific Queen-rearing*, you speak of taking a laying queen from a nucleus, having her between two combs, taking bees and all, and, after taking out a failing queen which you wish to supersede, and two combs from her hive, set in the two combs of bees in place of the two removed from the full colony, thus being sure of a safe introduction 49 times out of 50. Would not a battle ensue unless some means were used to give all the same odor?"

I have never known of such a thing. If in time of a robbing craze, there might be, unless precaution were taken to do this work at about sunset, or at a time when

the bees were mostly quiet so far as prowling about was concerned.

"In *Scientific Queen-rearing* you tell of rolling a virgin queen in honey and dropping her in a nucleus or any colony in which you find sealed queen-cells, and, in a week or so, you find such queen laying. Are sealed queen-cells a proof that a colony is queenless?"

Not where a colony is preparing to swarm; but, outside of the swarming season, sealed queen-cells are good proof that a colony is queenless in so far as a *laying* queen is concerned, or that they are about to supersede their queen, when in either case they will, nine times out of ten, accept a queen dropped in at the top of the hive, between the combs, when rolled or covered with a spoonful of honey.

"On page 85 of the same book you tell how to make a cage for introducing queens so it will stick to the side of the hive with two nails. Could such a cage be purchased from any supply house?"

I doubt it. If you will get out the different pieces as there described, and then put them in place, you should be able to make the cage from the description there given.

"On page 86 you tell of shaking the bees of a colony off from all the frames of brood which they have, and giving said frames to another colony. Should it happen that this other colony had all the brood they could care for or cover, would not this extra brood given perish?"

As most of this work with queen-rearing and changing of queens is done during the mild or warm months, there is little danger from brood perishing when properly handled. Put a queen-excluder on top of a moderately prosperous colony, and then put a hive of brood on top of the excluder, and see how soon the bees from below will spread out so as to care for the whole. It is rare that any brood ever suffers from a prime swarm leaving the parent colony, even should it turn cold just after, altho three-fourths of the bees go with the swarm.

"On page 120 you tell of contracting hives by means of a division-board to suit the size of the cluster at the opening of the working season for the bees, and say, 'Honey enough is provided to keep them for two weeks.' How much is that?"

I there speak of colonies that do not

FROM THE FIELD OF EXPERIENCE

occupy five spaces between the combs on cool mornings the middle of April. A colony strong enough to occupy only two spaces at that time can, on this contraction plan, be built up to good strong colonies in the fall, and the three and four space colonies be brought up to where they will swarm or store quite a surplus. The two-space colony should have a frame having three pounds of honey given them besides their two combs of brood; the three-space colony five pounds, and the four-space colony eight pounds, putting the frames of honey next to the side of the hive furthest away from the entrance. Care should be used in this matter; for if these weak colonies are given more honey than they can protect from robbers, harm is likely to result.

"In your book, *Management of Outapiaries*, page 27, you speak of queen-cells having larvæ in them from one to four days old. How do you recognize the age of royal larvæ?"

The same as with worker larvæ up to when they were three days old. All larvæ, so far as I can discover, are, to all intents and purposes, alike for the first three days, no matter whether they are swimming in royal jelly or fed in worker cells. By noting the time when a larva hatches from the egg, and then looking morning and evening till the fourth day, you can carry the size in your mind sufficiently for all practical purposes.

"On the same page as above, you speak of a comb having a 'ripe' queen-cell on it. By what do you recognize a ripe queen-cell?"

When a queen-cell is ripe, or nearly so, the bees gnaw the wax off till the cocoon spun by the embryo queen shows at the end of the cell. As long as the wax at the end of the cell remains intact, the royal occupant will be white and soft, the eyes not even having colored. Generally the wings are being formed about the time the wax is removed, and the development of the wings is not accomplished until a few hours before maturity.

"What do you do where there are two or more such ripe cells on a comb?"

If cells are scarce and valuable, where there is more than one on the comb to be given to a nucleus or queenless colony, the surplus should be cut off and put in queen-cell protectors for use where needed. If they are not needed elsewhere the bees will destroy all but the queen they wish to keep.

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Letters from a Beekeeper's Wife

The Farm, March 1, 1917.

Dear Sis:

Rob is making out the order for new beekeeping supplies for this year, and while he does that I may as well write to you. He has pulled his front lock down over his eyes in the usual way when he is disturbed. We have both been groaning over the \$300 that we have to put into supplies—we are buying 100 new hives among other things, for you know we expect to start another bee-yard this spring. That town lot that Rob's father bought years ago, when he thought the village would develop toward the west, has never been worth anything, but Rob thinks it will be a good location for bees and it is convenient enough to our other yards to make it feasible. Fortunately our \$300 worth of supplies does not have to be paid for entirely in cash, for we have a considerable quantity of beeswax to turn in, to be made into foundation. Rob will feel differently about this investment by fall, and is really quite ready to spend the money now.

Would you believe that beeswax would make a more stable currency than gold? It really has changed less in value in the last fifty years than gold has, so I'm thinking I had better write to Washington and have our standard changed to beeswax. Think how nice beeswax coins would be to carry about; and wouldn't they be pretty with a skep stamped on one side and Her Majesty, The Queen, on the other, symbols of royalty and industry! A dollar weighing over three pounds might be a little awkward tho! Too bad the modest bees could never know their greatness. Surely no king whose head appears on coins can trace his ancestry as far back as the honeybee. You know fossil bees have been found, which indicate that they were living in colonies when the cave man was using stones to sling at his wife. I wonder if Grandfather Cave Man was stung when he stole the honey from the wild bees of the forest to carry home to his offspring. Of course he would have to promise to bring the children some sweets on his return from a hunting trip, and of course the bees would have to furnish them! Doesn't it make you humble to realize that these tiny insects in that early age had learned how to live in communities and to divide their labor, problems still unsolved satisfactorily for us?

FROM THE FIELD OF EXPERIENCE

They were ahead of us too in the matter of building their homes. I don't believe you will find such economy of material and space, combined with strength, anywhere but in honeycomb. The hexagonal cells, back to back and side by side, row after row, are marvelously fine and beautiful, and practical as well, for the material is waterproof and tough, yet plastic enough to mold. Personally, tho, I am just as well satisfied to be a member of the blundering human race that is still experimenting on building materials and so many other things. It might be a trifle monotonous to have double rows of apartments, all the same size and color, backed up together on uniform streets. It is plain to be seen that our friends the bees do not go in for artistic variety—still they are spared the fantastic and grotesque buildings that some of our neighbors force upon us occasionally. Remember the tower on old Mr. Tomlinson's house that Father used to call the wen?

Rob says it's time the children were in bed. They have been popping corn and pouring honey syrup over it. It's very sticky, but delectable, and I shall stop writing to have some. Wish you were here to help crunch.

Your loving sister, Mary.

Progress of Beekeeping in Virginia

I decided to give the quadruple winter case a thoro test this winter, so made eight cases of the Holtermann type and packed 32 colonies in them with about five inches of dry wheat chaff on all sides and on top.

I am glad I have the most of my bees packed in these cases, as the colonies were not as strong last fall as they should have been, and we are having some very cold weather here this winter. The bees have not been flying out on the warm days as much as they used to at this time of the year. Probably being packed so warm has something to do with it.

Beekeeping has not progressed in Virginia as it should have done. Most of the colonies are left out without any protection at all, and lots of them die in the winter from starvation and exposure to the cold. We have some cold weather here, and it is my opinion it would pay the beekeepers to experiment on winter protection.

We have lots of honey and pollen bearing trees and plants. Our earliest pollen comes from the alder, which blooms some time in February. It grows in great abundance along the river and branch banks, and is a great help in building up colonies. Next comes maple, which grows in great abundance in the forest, and is a great help to the bees, as it yields a good amount of honey as well as pollen, and just at a time when it is most needed in spring brood-rearing. Apple and peach are also good sources of early pollen and nectar. These fruits are raised extensively in some sections of the state.

Our main honey-flow begins the first of May, and consists of locust, poplar, gum, persimmon, and wild berries, of which blackberry is the most important. The poplar is our heaviest yielder in the first flow, and is more plentiful than any of the others. The honey is dark, but well flavored and of heavy body.

After the first flow is over we have about two weeks intermission, and then by the middle of June the next flow begins, which is from sourwood, sumac, etc. Sourwood is plentiful, and is a good yielder of a water-white honey of good flavor and body.

We have good markets in Virginia for all the honey we produce, and at a good price. In fact, most of our markets have to draw on other states for their supply.

I have had single colonies produce as much as 296 pounds of honey in one season, and have averaged as high as 183 pounds per colony in a season. My lowest average for four years was last season, and that was 38 pounds—not such a bad yield after all.

Stockton, Va. FRANCIS W. GRAVELY.

Testing the Breeders

No matter where the prospective breeding queens are procured, it is very important for the keeping up of our particular strain that they be put thru exhaustive tests to eliminate any but those possessing such qualities as are desirable in our queen-mothers. Since it is possible to requen the whole yard from one queen, without much extra effort, it is but reasonable to insist that her qualifications should be above the abilities of any but the extra best. Therefore one should not breed from a queen in

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FROM THE FIELD OF EXPERIENCE

Wide Spacing for Swarm Control

Speaking of the control of swarming from the honey-producer's standpoint, I feel that I ought to acknowledge my ignorance. Tho I have studied the problem for many years, tho I have worked hard to keep swarming in check, and have made the work pay, I do not know the cause of swarming.

I have read practically all that has been written on the subject in the English language since 1890. Many theories have been advanced, accompanied by more or less convincing proof, but in practice all have proven fallacious. It may make the matter a little clearer to say that swarming is caused by an instinct which is modified by environment, as are all instincts. The instinct itself must be attacked if we are ever to have non-swarming bees; and that can be done only by careful and long-continued breeding. There is no doubt in my mind that successful work is being done in this line. I have some hope that my grandchildren may be able to buy non-swarming stock by the end of the present century.

Taking the other half of the difficulty, that of environment, there is hope, and indeed certainty, of success; but the labor involved is so great that it requires some figuring to be sure that it pays. In my own apiaries I depend on the fact that bees seldom or never swarm without a queen, keeping all colonies queenless during all or a part of the honey-flow. This work is so exacting that I have never been able to get it done by hired help. I do all the work myself, and even then I have some swarms. I may remark in passing that I have known two cases where a colony swarmed and left apparently without a queen of any kind. I think I described the cases in GLEANINGS a year or two ago.

Certain factors in environment are easily disposed of. It is easy to give ventilation and shade. Wider spacing of frames, at least so far as to give it a trial, may be had with little trouble. By leaving out the division-board in eight-frame hives, spacing all frames equally to take up the extra room, we can have 1½-inch spacing. In ten-frame hives, one frame may be left out, leaving the division-board in the hive. Since the point of wide spacing has been brought up by Mr. Dadant, and given a prominent place by the editor of GLEANINGS, I expect to try the wide spacing on twenty per cent of my colonies thru the next honey-flow. If records are carefully kept, such an experiment may be valuable.

There will be some difficulty in removing the first frame when no division-boards are used, and some trouble in getting back to the narrow spacing when the cells have been lengthened and filled with honey; but the experiment must be made if we are to have any definite knowledge on the subject. If 1½-inch spacing of brood-frames will give us ten per cent less swarms I will cheerfully bear the expense of making the change.

I still feel inclined to doubt the evidence. So many factors are involved that it is difficult to judge; and Mr. Dadant does not claim any positive knowledge. I should like to see an article on the subject, by Allen Latham.

Newman, Ill.

C. F. BENDER.

Why Dequeen the Cell-builders?

On page 939, October 1, Mr. Kenneth Hawkins takes Mr. Pritchard to task for advising Mr. Kuenzli to use only capped brood in his cell-building colonies, stating that he cannot afford to have so many colonies backward from dequeening and requeening later. Now I shall have to go Mr. Hawkins one better and ask him why dequeen at all. I find it unnecessary. Furthermore, I find it more advantageous to have a good vigorous queen in the hive to keep up the supply of young bees so necessary for the best results.

Last season I started with one colony fairly strong, and the same colony continued to build fine cells the whole season. I prepare my colony for cell-building by raising two combs of hatching bees over an excluder. These young bees hatching out and finding cells left vacant seem to consider themselves queenless and will take a limited number of cells. As fast as they gain in strength they will accept more; but I make my queen-rearing system a continuous performance, giving only a few cells each day, about seven or eight generally the first two days; then after waiting a couple of days I repeat the operation. From time to time I take a frame or two of hatching brood from the lower story of the hive and put it above; but this is more for the purpose of giving the queen more room to lay, thereby adding more bees to the strength of the colony than for any other purpose, as the bees as they gain in strength will naturally crowd up into the super. This cell-building colony I used last season contained a very fine drone-producing queen, so I assembled



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a large amount of drone comb in the lower story; but in spite of this handicap they made me sixteen frames of honey. The hatching brood placed above the excluder as fast as the cells are vacated is replaced with honey, and sealed over. This I put away for winter stores. During a certain part of the season the bees are very troublesome about building comb on the queen-cells unless they are given a certain amount of cell-building to do, so I make it a practice to fill up the additional space in the upper story with empty frames containing inch starters.

NO JELLY USED IN GRAFTING.

I use grafted cells; and, contrary to the usual idea, I find that I get more cells accepted without royal jelly than I do with it; and also, contrary to the text-books, I find they are not inferior cells either. The essence of success is in doing the work quickly, otherwise the larvæ becoming dry are not accepted. By my system of giving only a few cells at a time I overcome this tendency and do away with the necessity of tearing into cells and robbing them of their jelly.


COLORED CELL CUPS TO TELL THE AGE.

It may be interesting to know how I can tell how soon to cage my cells when due to hatch, as I do not want them taken away from the bees at all. I graft my cells attached to wooden cell cups similar to the Root system, but I color the wooden cups a different color for each day in the week. The system of colors I use is as follows: red, white, and blue (an easily remembered combination) represent the first three days in the week. Wednesday cups are black, which, being no color at all, separates the first three days from yellow, green, and brown, representing the last three days of the week. It does not follow that one needs to graft cells on Sunday if he is opposed to Sunday desecration; but a color scheme to be a success must take cognizance of each day of the week the same as a calendar numbers each day consecutively. Having my cells all colored I know at a glance that a blue cell was grafted on Tuesday, and it can be expected to hatch about Monday of the following week after it is sealed. An experienced eye can always tell from the appearance of the cell if it is just sealed or if it is nearly ready to hatch.

By using this system of grafting and coloring cells, I am also enabled to get along with a few cell-cages. My cell-nursery-cage system is also something different, as I do

not like the idea of taking cells away from the bees for an instant, so I made a couple of hangers to fit an ordinary Hoffman frame and tacked on each side of them a strip of Tinker zinc about three inches wide, and at regular intervals I placed a partition to which I also tacked the zinc. Over the top of this frame I nailed a thin piece of maple in which I bored $\frac{3}{4}$ -inch holes. This made eight compartments in each frame in which I place a cell each, a day or two before ready to hatch, and the bees are able to go thru the zinc and cluster on the cells, thereby keeping them warm and also feeding the young queen when she cuts her way out. I do not know what would be the effect of leaving these queens too long in these cages; but the bees might tear cells down if left too long, so I make it a practice to go the first thing in the morning and remove all hatched queens and introduce them to nuclei. I have frequently left young virgins in this nursery cage for several hours without any bad effects, but they are much easier to introduce if young.

Salem, Oregon. FRANK M. ALLEY.



One of the Old Veterans


A. G. Lyman, of Morganton, N. C., one of the oldest beekeepers in the state, has taken GLEANINGS since it first started. Until two or three years ago he had every copy on file that was ever issued; but, unfortunately, they were destroyed by fire.

Mr. Lyman has about fifty colonies, and cares for them himself, following strictly modern methods. Even at his ripe old age he makes his own hives, which are as perfectly constructed as any hive on the market. After a long experience in several states he advocates a 12-frame hive, or a 10-frame at the very least.

At the recent field meeting here conducted by Mr. Rea, Mr. Lyman was one of the youngest and most enthusiastic men in attendance.

L. E. WEBB.

Morganton, N. C.



With a Three-frame Nucleus

On June 1 I started in beekeeping with a three-frame nucleus in a 10-frame hive. During the fore part of October I took off a super with 26 beautifully built sections and found the brood-combs entirely full of honey.

J. W. McMILLAN.

New York City.

FROM THE FIELD OF EXPERIENCE

Effective National Advertising

Mr. H. Bartlett Miller, in the January number, page 36, has an article on the above subject, in which he says: "I have come to the conclusion that we are not down to bedrock in the essentials of advertising as taught by modern schools devoted to this subject." Advertising is a gamble, not an art nor a science. It is largely guesswork, for no man alive may know what results he will get from an advertisement until it is tried. Mr. Bartlett then attempts to elucidate, but gives the reader nothing new until he jumps on to my pet, the little "EAT HONEY" sticker, nearly breaking my heart by saying, "It is good in its way in lieu of nothing at all." Fie! However, I do not need to defend the little thing, as I am informed that millions of them are being sold. A further remark of his, "That honey aids digestion does not appeal ****", "leads me to say that I am not to blame for "aids digestion—Nature's own sweet," "Angel's food," and the other words added to *eat honey*, so I dodge one brick.

Mr. Miller is not satisfied with getting up an advertisement which, I think, violates the very first essential of good work—namely, truthfulness. After declaring that "***** we add another fact that the reader never knew before, and cannot contradict. Being a fact, the whole world must come to recognize it if *we tell them*

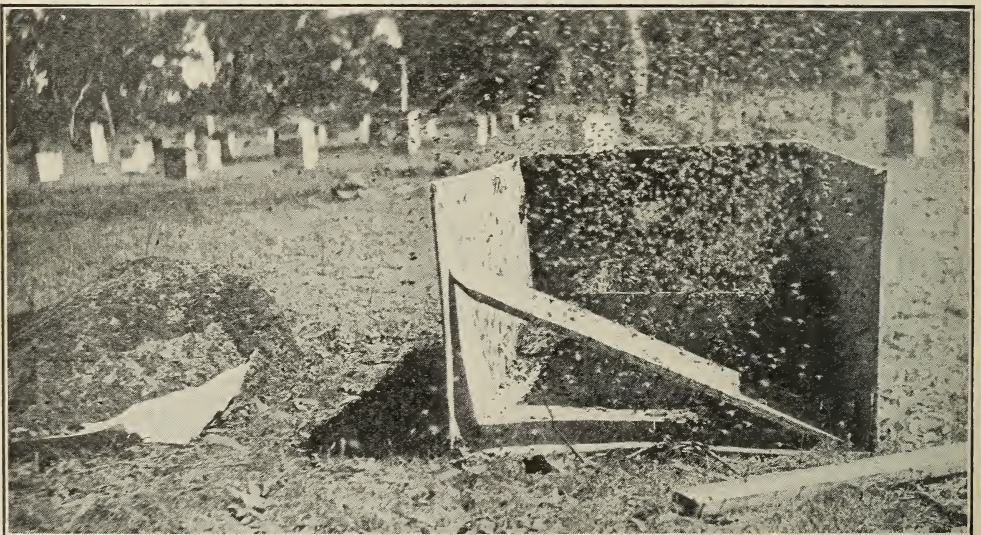
sufficiently often." That is naive, is it not? Why, bless you, Mr. Miller, that is about all there is to advertising.

However, Mr. Miller's advertisement is open to serious criticism, aside from its untruthfulness. In the first place, it is much too long for a catch-eye poster. According to my ideas of advertising, it would be far better if he stop at the first period, when it would read: "You cannot live (as) long as you should unless you eat more honey." Why attack sugar, when everybody eats it, always has eaten it, and always will eat it? Why not hold up something we know is more or less injurious—the various corn-syrup abominations? But, after all, why abuse any of them? You only weaken your own advertisement.

The first part of his advertisement will not stand examination, as nobody will pay a bit of attention to the statement, for they instinctively feel that it is lacking. Were it true, it would have been known ages ago, and honey would not have been begging a place on our tables. In the next place, the reason given: "Sugar wears the system out. Honey builds it up," is totally untrue, and the statement will bring down ridicule on our advertising.

I have always entertained serious doubts as to the utility of calling attention to honey as a remedial agent, and have a lingering suspicion that it is not well to

Continued on page 225.



Bees in Australia in a frenzy of delight over artificial pollen.—From W. J. Barnes, East Melbourne, Australia.

BUYING colonies in box hives at \$1.50 each is better than to increase when sugar is high, p. 55. May it not be better even when sugar is low, if you take into account that you gain a year in the harvest with the box hives?

PROF. BALDWIN advises, when introducing a queen by sousing in honey, to have the entrance narrowed for a day so as to avoid robbing, p. 1161, Dec. 1. Possibly it might be still better to operate in the evening, so everything would be cleaned up before morning.

SUPERSEDURE of queens is not infrequently spoken of as a thing rather exceptional. Think it over carefully, and see if you don't settle down to the belief that, in the natural course of affairs, barring accident and interference of the beekeeper, *every laying queen ends her career by being superseded by the bees.*

J. H. J. HAMELBERG, p. 1167, you go half an inch beyond me when you say "the distance between the floor and the bottom-bars of the brood-frame is $2\frac{1}{2}$ inches." But you don't say how you prevent the bees from building down in such a deep space. Or don't the bees build down in the Dutch language?

WALTER J. BAILEY's ventilator, p. 1166, looks like a good thing. But the super sits square on the hive. As it is an extracting-super, why not shove it forward so as to leave a ventilating-space of $\frac{1}{4}$ or $\frac{1}{2}$ inch at the back end? Then the next super could be shoved backward leaving a space in front, and so on, staggering the pile.

HAVE YOU made up your mind to improve your stock by breeding from the best? If you've begun only now to think about it, you will hardly know which is your best colony this year, and must guess the best you can. But it's none too early now to lay your plans for the breeding of 1918. Keep a written record of each colony. If brood is given to a colony to help it to build up in the spring, or if brood is taken from it to help others, put it down. Especially give each colony credit for its honey each time you take any from it. If you do that faithfully this year you will have an intelligent idea as to which colony or colonies to breed from in 1918. There's big money in it.

"GLEANINGS has decided it will accept no advertisement from any pound-package man unless he will furnish satisfactory refer-

STRAY STRAWS

Dr. C. C. Miller

ences, guaranteeing pure stock and safe arrival," p. 11. I'd prefer impure stock by the pound, if so represented, and at a little lower

price. [Impure stock will not resist European foul brood as will pure stock: and it will cost no more to furnish good stock than poor stock. Why not furnish the best? —ED.]

WHEN a laying queen ends her career, what kind of death does she die? I know that normally she is superseded by the bees; but I don't know whether she is killed by the young queen or by the workers (it seems rather horrible to think of one of her own children killing her, whether queen or worker), or whether she dies a natural death. Some one please tell us.

J. E. CRANE asks, p. 48, why I don't use free-hanging frames, just as Langstroth made them. I did use them many years. They take less time for taking out frames, but that gain is greatly overbalanced by the amount of time it takes to put the frames in; and with the utmost care one can't space them as regularly as the self-spacers. Then, too, there is trouble with the frames twisting, allowing bottom-bars to touch.

SOME ONE is reported, p. 56, as getting even with the Dadants — freedom from swarming—by having two stories for the queen till a week before harvest, then putting eggs and unsealed brood in the lower story, hatching brood in the upper story, an excluder between, p. 56. I'm pretty sure my bees would swarm with that treatment. But they might not—I think generally would not—with hatching brood below and unsealed brood above.

A. I. ROOT, you tell us, p. 65, that you thought of taking the best potato, evidently having picked it out, then thought better of it, took another, and passed the dish over to Mrs. Root. So long as you had your eye on the best, it would have been better to pass that directly to Mrs. Root, not giving her the chance to follow her usual custom of taking the poorest. At our house there is no trouble as to selection—the potatoes are all best. Mrs. Miller raises them.

"FOR EARLY SPRING, while the bees are building up, I crowd the frames up to $1\frac{1}{8}$ to $1\frac{3}{8}$, so that the bees can cover more space," says F. H. Cyrenius, p. 63. The closer the spacing the more combs the bees can cover. But somewhere there comes a point where the spacing is so close that

there is not room for enough bees to keep the brood warm. Is it certain that that point is not reached somewhere between $1\frac{1}{8}$ and $1\frac{3}{8}$?

A MISSOURI beekeeper asks why bees should go $1\frac{1}{4}$ miles to work upon a given plant when there is more than they can do on the same plant within half a mile. I don't know why all the bees of an apiary do not pounce upon one spot where nectar is most plentiful; but it's a fine thing they don't, and I suppose Dame Nature gives them the instinct for spreading themselves around, and the same instinct makes them sometimes go further afield than is absolutely necessary.

J. P. BRUMFIELD wonders what M. H. Hunt does with the combs and what honey is in them when he uses the Demaree plan for comb honey, putting the brood over a ventilated bee-escape board on top of the sections, GLEANINGS, Sept. 1, 1916, p. 777. Mr. Brumfield says he would rather keep a white elephant over summer than a set of brood-combs without bees, on account of moth. I suppose they might be piled several stories high over weak colonies. But I must confess that when I tried Mr. Hunt's plan the bees carried down bits of black comb and darkened the cappings of the sections.

HEARTILY I commend the able way in which the advantages of "Roadside Marketing" have been shown up, p. 13, all but one thing. I regret exceedingly to see anything said encouraging Sunday as day for best sales. If I believed in no God and no hereafter, I would still insist, on purely economic grounds, on the careful preservation of one day in seven as a day of rest. Big business is all tending that way nowadays, and for beekeepers to make an exception is a step backward. But believing heartily in a God and a hereafter, I count it still more important than for economic reasons that we avoid Sunday sales because that God said, "Remember the sabbath day to keep it holy."

J. P. BLUNK, referring to the last Straw in GLEANINGS, Dec. 15, thinks 50 to 55 degrees hardly warm enough for cellar, 60 being perhaps better. He also thinks my bees might be better off without sealed covers. May be, may be, Uncle Joe, but I'm not so sure. You say your bees winter better since you gave up sealed covers; but I don't think the air in my cellar is so stagnant as in yours, for I think your cellar without a furnace is a good deal colder than mine. With the air in the cellar the same temperature as outdoors there is no change of air;

and the warmer the cellar compared with outdoors the more rapid the change. With the air constantly moving in my cellar, and with an opening of 2x12 inches to each hive, there ought to be little suffering from confined air.

J. E. CRANE has invented a device that Editor Dadant reports approvingly in *American Bee Journal*, January, 1917, p. 52, and Mr. Crane describes it thus in the January *Domestic Beekeeper*, p. 55: "A honey-board to cover the entire surface of the brood-chamber, with no entrance thru it but two slots on each side for the bees to carry the honey up into the super. This board covers all of the center of the brood-chamber, where bits of dirty wax are liable to be carried up and mixed with the cappings of the sections and injure their appearance. It should not be put on until work in sections has been well started, after which it does not seem to keep bees from storing in the sections." [The readers of GLEANINGS who have the back numbers can find an illustration of this honey-board, as described by Mr. Crane at length in the Dec. 15th issue for 1908, page 1508. Mr. Crane advises putting the boards on just when the bees are ready to begin capping the honey.—Ed.]

SOME SAY their bees store so much pollen that they have to throw away some of the pollen-clogged combs. That may be, but I'd like to be more sure of it. You know it is said that a queenless colony stores little or no pollen. Yet a queenless colony is the very one to have pollen-clogged combs. I suppose the fact is that a queenless colony keeps right on storing pollen; and then when pollen is no longer needed because no brood to be fed, an accumulation occurs. Then when the bees find there is an overstock they stop bringing it in. If queenless bees stop bringing pollen because not needed, will not other bees do the same? I wonder if throwing away combs of pollen isn't as bad as throwing away combs of honey. [Combs of pollen in the spring of the year may be worth several times the same number of combs solid with honey. While bees can start brood-rearing on rye meal and some other substitutes, there is nothing that comes anywhere near the natural pollen. The want of it at the right time may seriously check brood-rearing and cut down the working force and leave the colony in poor condition to catch a crop that may be available. Or, to put it another way, a stock of combs containing pollen may make all the difference between profit and loss in the yard.—Ed.]

JANUARY, 1916, is remembered by many beekeepers in Ontario as being unusually mild all thru—so mild indeed that bees in many cases started brood-rearing heavily and used up a great amount of stores. January, 1917, to date is altogether different, as it has been quite cold nearly all the time, with a number of days below zero—twice it has been 20 below in our vicinity. All things considered, a steady, moderately cold winter is better for the bees than one with many sudden changes—at least that is my opinion and experience.*

The snowfall, while not heavy so far, has been at all times, since cold weather set in, sufficient to give a nice covering to the clover. While the snow is in some respects not altogether a thing of pleasure, even if it is a thing of beauty, yet a winter with little or no snow here in Ontario is abnormal, and I think we are all agreed that heavy snows are a benefit rather than otherwise. With no snow on the ground the frost goes deep, and then in the spring the danger of "heaving," as applied to clover, is much greater than it would be with little frost in the ground. In short, snow is a protector; and among other good things it is a wonderful help to bees wintering outdoors to have a good thick blanket of "the beautiful" over the hive when the thermometer gets to zero or lower, and the winds are howling.

This year there has been a tendency on the part of some beekeepers as well as some educators of beekeepers to encourage the use of 60-pound tins as a package for supplying customers who are learning to use a lot of honey. Personally I think this is a great mistake; and while I formerly sold more or less to retail customers in that style of package, I now would not sell it to them in a 60-pound tin unless they really asked me to do so. Five or six years ago we did quite a heavy western trade in 60-pound tins, but now we have cut it out altogether. Why? Simply because the great majority of people having granulated honey in as large a package as the 60-pound can will spoil the honey more or less when they liquefy it. Then,

* Most of the items on this page were prepared for the February number, but reached us too late for insertion in the last issue.—Ed.

NOTES FROM CANADA

J. L. Byer

again, a smaller package is easier to handle in every way, and the bulk of the honey may be kept safely sealed away from dust, moisture,

etc., which is not so easy with one large tin. Instead of a 60-pound tin, we now sell to scores of families each year 60 pounds or multiples of 60, supplying it instead in 10-pound pails, six pails in a crate. For the local trade the crates are always returned gladly; and in shipping west, there is little difference between cost of the crated 60 or the 6 pails in a crate, as in the latter case all pails are sold gross weight, the customer knowing fully what he is getting. The pails are lithographed, and have directions for liquefying, where to keep the honey, etc., plainly printed on them. They serve as educators in more than one way. I certainly consider the 60-pound tin a back number as a retail package, even if families are being supplied that use large quantities.

Talk about "old-fashioned winters"—if the present one does not come under that heading, then we never expect to see one. Very steady cold almost every day since early in December, and bees have not had a chance to shift in the hives, let alone have a flight. How are they wintering to date, Feb. 7? I have hardly looked into a colony since weather turned cold, so I can not even make a guess. With smaller clusters than usual, and such a cold steady winter one might imagine the very worst. In the fall it always gives us a pleasant feeling to find brood-nests heavy with honey; but about Feb. 1, with a winter like this one, we begin to wish there were more sugar syrup in the hives, for there is no question that the syrup gives best results when bees are put to real severe tests. If natural stores are perfect, then nothing can excel such for wintering; but, unfortunately, this is not always the case; and during exceptionally long terms of confinement with steady severe weather, dysentery is sure to show up in the apiaries more or less.

On page 1064, Nov. 15, Mr. Chadwick takes an entirely erroneous view as to what I had in mind when recently speaking of diagnosing conditions of a hive by external examination. He says, "Where there is a reason to expect disease, careful inspection is necessary and should be en-

couraged to the greatest extent." We were not speaking about disease, but about running a lot of apiaries with little help, right in the rush of the honey season. Here in Ontario, at least, we want all inspection for disease done long before that time. While I am ready to admit that some pretty rough work goes on in some of our yards at times, yet we certainly want to examine each brood-nest thoroly twice each year to be sure if foul brood is present. The first and main examination is during fruit-bloom, when the clipping is done; and then after main flow is over we try to examine each brood-nest again during buckwheat bloom.

LARGE SHIPMENTS OF BEES IN ONTARIO.

Buying bees from the South in combless packages bids fair to reach large proportions in Ontario this year. Bees thus bought in 1914 and 1915 were in many cases very unsatisfactory, owing to poor seasons, and also to the fact that many packages arrived in poor condition. On the contrary, bees bought in this way in 1916, wherever received in good condition (and this was the rule rather than the exception), gave universally good results—hence the boom. While no one knows just yet how the combless-package business will turn out, one thing is certain—seasons like our last one are pretty sure to be few and far between. The clover flow came very late and gave the bees a chance to build up before the flow, and then, again, the best part of the clover flow was near the end of the blooming period. I have had seasons in the past when as much as 100 pounds per colony was harvested; and I am sure the pound packages in said years would not have stored a pound of surplus, as flow was very early, and over with by the time it only nicely started this past year. With the volume of business that is sure to be done this year, no matter how the venture turns out, the editorial admonitions in the January issue are timely and to the point, if much dissatisfaction and unpleasantness are to be avoided. For one thing is sure—shipping pound packages is something that all advertisers along that line have not yet accomplished.

LARGE VS. SMALL.

A nice predicament I have got into surely by making comparisons between that extremely small entrance mentioned on page 909, Oct. 1, and the extremely large entrances endorsed by some people, and classing them both under the head of "ridicu-

lous." Like a Scotchman under somewhat like circumstances, "I will no apologizee, but I will compromise" by saying that for the moment I forgot that Dr. Miller used such a monster entrance as mentioned on page 1013, Nov. 1; and if I had not been so thoughtless I would not have made the comparison. But if any other beekeeper than the doctor advocated such a large entrance I would still be tempted to designate it as "ridiculous."

But see here, doctor, I am not going to humor you by saying which I should prefer in the way of entrances if forced to use either that very small one or the one with the *front of the hive removed*, for, "honest Injun," I think both of them *ridic*—beg pardon, I meant to say, both of them are extremes, and I would rather take a course somewhere midway between the two. Yes, I have my own ideas as to why such large entrances are no help to a colony, even if they are not harmful; but in the face of the trimming I could look for, if these claims were advocated, probably I had better keep quiet, for "he who fights and runs away may live to fight another day."

THE DOUBLE WINTER CASE.

The editorial on page 1011, on wintering in Canada, may be right in assuming that quadruple cases are growing in favor among the beekeepers for outdoor wintering. Possibly that is the case, for I personally know that a number of good friends, among them some of the best beekeepers here in Ontario, use these cases and recommend them to others. But there are others, and the writer is among them, who much prefer the single case or a case large enough to take two colonies. Personally I like hives facing south. That is one reason for my preference for the smaller cases.

But the main reason for my objection to the four-colony case is their bulkiness. One man can hardly handle them alone under any circumstances unless they are made on the clamp principle, and then there is always a mussy job gathering up the packing. In our seven different apiaries we have hundreds of one and two colony cases, and but five quadruple cases in the whole outfit. Five will be the maximum as long as I have anything to do with the business; but I am not sure whether that number will be the minimum. This is a free country, and many men of many minds; and far be it for me to try to persuade any one on this question, as bees will winter well in *any* of the cases provided the bees are well prepared in other ways.

OUR mean temperature for December was the lowest for 29 years.

The records up to Feb. 1 show that the rainfall is a little below the average for the season.

What we feed is of little more importance than when we feed.

If no moths are allowed to hatch in neglected combs they will get pretty scarce in a short time.

It is a great deal better to have a lot of supplies ready that you do not need than to need a lot that you do not have ready.

A man who can be trusted to do the right thing when no one is looking at him is the kind of man to have at an out-apiary.

If a low grade of honey can be used by large concerns for making desirable pastry, why can not the housewife learn to do the same?

There was less pollen brought into my hives during December and January than at any time for thirteen years during the same months.

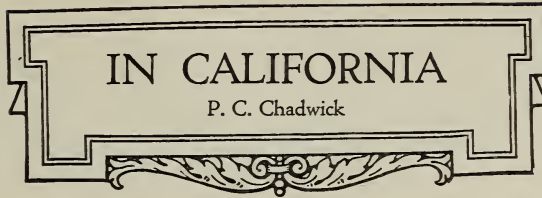
A little lemon juice is excellent to remove propolis stains from the hands after they have been cleaned of the propolis (ladies, take notice).

San Diego County's farm adviser is collecting samples of honey to aid in standardizing the product thruout the county.—*California Cultivator*.

Book theory of beekeeping is valuable; but when we add to this the real, dearly paid-for experience that most of us get, we learn the things that we remember.

The last sentence of my third paragraph on page 52, January issue, should have read: "I believe more harm is done by injudicious spreading than good is done by knowledge of the art."

January ended the fourth consecutive month with the mean temperature below the average. It was even colder than December. There were 24 days when the mini-



mum reached below 40 degrees; ten days when the minimum was down to the freezing - point and below, and twenty days when the maxi-

mum did not reach sixty degrees.

Wintering five-frame nuclei is expensive. I have some nuclei to which I have given more combs of honey during the winter than my ten-frame hives had at the beginning of the winter, yet the ten-frame hives have more honey at present than the five-frame.

If you find a colony destitute in cold weather, do not try to feed the bees thin honey or syrup, but give them pure thick honey or very heavy syrup. They have to put in a lot of work on thin feed, reducing it, and that makes undue excitement, which is not desirable in cold weather. Thin syrup is all right for stimulating—the thinner the better so long as they will take it up.

The county bee-inspector of Los Angeles County has been placed under civil service, and all deputy inspectors must pass an examination. This seems like an excellent idea, at least so far as getting competent inspectors is concerned, provided the examination is up to a high enough standard. It won't put "pep" into an inspector, however, and that is really an important qualification for this office.

During the winter of 1915 wood rats or trade rats, as they are called, got very bad at my apiary; and in order to save the expense of their waste I purchased a can of poisoned wheat at a local drugstore and fed them freely on it. In the spring I was overhauling my equipment, and, to my surprise, I found a very cosy nest in a stack of supers, with plenty of my dangerous wheat in easy reach of the nest. The rat had either had his stomach lined or the wheat was not sufficiently poisoned.

During March the apiary should be carefully inspected to locate any disease that may appear. If a few colonies are found that show disease, make them safe by leaving only a very small entrance until they can be cared for. If American foul brood appears, melt up the combs at once, and be sure that the bees do not get into other hives before you kill them. If it is European foul brood, and there are only a few colo-

nies, it is cheaper to melt them up also. If a number of colonies have it, then treatment may be the most desirable. If you do not know disease when you see it, get your inspector to help you. He will willingly do it, for that is his business.

* * *

There is some agitation favoring barrels for honey in California. Go slow, boys. The trade is looking for California honey to be delivered in the usual cans and cases, and there would be some very suspicious customers if the same package were tried that brings cheap honey from other parts of the world to our markets. Besides, the cans and cases are far more desirable to handle. Loading a barrel of honey would make "quite a little chore" for two men; then you might want to bring in a few hundred pounds on your "tin lizzie" as you come in from the apiary each night, and you would find it rather uphill business loading a barrel of it yourself.

* * *

There seems to be an impression prevailing that a queen raised under swarming conditions, which may be said to be natural conditions, is superior to one raised thru other inducement. Personally I cannot see why that should be the case. If larvæ are transferred at the proper age, and a colony given cells after all of their brood has been removed, the nurse bees will literally flood them with royal jelly, give them every attention desired, and draw the cells out long enough for the most particular persons. It must be true that the majority of queens sold on the market are raised outside of the swarming season, yet the beekeeping public seems to be very well satisfied with them, and they seem to be giving good satisfaction.

* * *

Did you ever spend an entire hour watching the bees work on the flowers? Try it once and you will find out how long an hour really is. Don't wander around looking at a bee here and there, but pick out a bee and stay with it until it is ready to go home, then take up another one. Last summer I watched thirteen hours, an hour or more at a time, attempting to prove that a bee would gather pollen from more than one kind of flower on one trip. But I did not prove it. Once I was sure that I was going to see one mix its pollen. Down, down it came until it almost touched another kind of flower, but not quite, for it refused to alight. I went into the subject fully convinced that I would find that a bee would mix the pollen from two different kinds of flowers on a single trip. I chose, for my observation, places where

numerous wild flowers of various kinds and colors were growing with each other. At one time I had four different bees under my immediate view, all of which were gathering a different color of pollen; but not one slip did they make that I was able to observe, each remaining true to its color until the load was completed.

* * *

Many beekeepers are waking up to the fact that their bees have consumed more than the average amount of honey during the past four months, while many colonies were left with only the average amount to begin with. The result is what might be expected—reports of heavy losses from various localities, which losses are due entirely to the lack of sufficient stores to feed them properly. It should be an object-lesson to those who have been the sufferers; but the chances are they will soon forget and be caught in the same trap before many years pass by. Better think the following over and write it on the honey-house door: "Nothing is lost by leaving plenty of honey in the fall; for if your bees do not need it, it will be there the following spring, and you will get it any way. If they do need it, they need it bad."

* * *

A bulletin has just been issued by the College of Agriculture at Berkeley, entitled "The Common Honeybee as an Agent in Prune Pollination" (Bulletin No. 274). It treats of experiments made on this line during the past season. I advise beekeepers to write for a copy of this report.

A pair each of French prunes and Imperial prunes were enclosed under mosquito-bar. One of each variety was furnished a colony of bees within the enclosure, while from the other one all insects were excluded. The results were as follows: Amount of matured fruit on the French prune-tree under tent with bees, Aug. 1, 18.05 per cent. French prune-tree under tent from which bees were excluded 1.04 per cent. French-prune average orchard set 3.59 per cent.

Imperial prune-tree under tent with bees, 1.69 per cent. Imperial prune-tree from which bees were excluded set nothing. Average orchard set of Imperial prune, 7.20 per cent. The following conclusions are offered: 1. That the French prune may be aided in setting a satisfactory crop by the presence of bees in the orchard during the blossoming period. 2. Without the aid of bees or other insects the set of fruit on the French prune is often light. 3. The Imperial prune does not seem to be able to set fruit unless pollinated by insects with pollen from other trees.

NORTH Carolina has organized a State Beekeepers' Association, with a nucleus membership of thirty-three. Prof. Franklin Sherman, Jr., of Raleigh, is President: Mr. W. C. Flemming, of Greensboro, is Vice-president, and Mr. S. S. Stabler, of Salisbury, Secretary-Treasurer. The start has been made with enthusiasm, and we all wish the association great success.



Banks, of Dwelltown, on "The Value of Young Queens," in which Mr. Banks advocated requeening every year, and still another by J. E.

Ring on "Marketing Honey."

As was to be expected, the particular interest of the meeting centered in the talk by Mr. C. E. Bartholomew, the federal extension expert, on "Wintering Bees." Early in his address Mr. Bartholomew referred to our winter loss as 50 per cent. If this figure is accurate, the average loss must be enormous up in the mountain districts or "back in the sticks," for among the progressive beekeepers in this section it is much less—much less. He quoted in some detail the interesting weather reports of daily temperature range and winter averages and summaries, concluding with the assertion that Tennessee bees need packing worse than the bees of Canada! And he backed it up with the reports of those scientifically conducted experiments at Washington.

Mr. Bartholomew also made a vigorous plea for stronger organization. Moreover he reported three good county organizations already formed—one in Smith County, one in Overton, one in Lincoln, with formal printed constitutions and schedules for monthly meetings. One interesting feature is the marketing committee, to look after not only the marketing of the honey crop to best advantage, but also the purchasing of supplies for the association. Each of these county associations is a unit in the county agricultural society as well as the state beekeepers' association. Other counties were urged to follow the progressive example of Smith, Overton, and Lincoln.

The question-box brought out some animated discussion. The question "What is the best way to make increase in this locality?" brought some smiles thru the instant answer, "Buy your bees from your neighbors!" Another question of interest was "How many at this meeting use some protection for their hives in winter?" The president called for a show of hands. Not one! May be some one will ask the same question next year. May be the answer will be different.

The following were elected officers: Dr. J. S. Ward, President; Mr. J. M. Buchanan, Vice-president; Mr. C. E. Bartholomew, Secretary-Treasurer.

Mr. Kenneth Hawkins, federal specialist for the South at large, has been compelled by poor health to discontinue his work.

This has proven a hard winter on our Dixie bees, to date. Weather conditions have been unusually severe, as tho trying to show our federal extension workers how bad they could be! We have had all sorts of sudden changes, with wide daily ranges of temperature. Two or three times we have struck practically zero weather.

From North Carolina comes a similar report, with the prediction of 30 per cent loss, due to the hard winter and low stores. An examination on January 30, when the bees had a good flight, showed less brood in packed hives than in unpacked.

The Tennessee State Beekeepers' Association met on February 2, with the mercury at two degrees above zero—good clustering weather, said Prof. Bentley, state entomologist. The weather undoubtedly kept some of our members away, but at that there was a fair attendance. Pres. Ben. G. Davis in his opening address made a brief plea for continued improvement in Tennessee beekeeping, deploring the necessity of large shipments of honey into this state, when we could and should raise enough for ourselves and our neighbors.

In his report of the year's work, Dr. J. S. Ward, state inspector, gave us some interesting figures covering both 1916 and 1915. This is a long state from east to west, and on an appropriation of \$1000 it is obviously impossible to visit the entire state in one year. Dr. Ward's figures follow.

	1915	1916
Apiaries visited	43	73
Colonies inspected	1374	2060
Queenyards inspected	6	4
Cases of American foul brood	58	97
Cases of European foul brood	150	113
Cases of sac brood	46	32
Cases of paralysis	20	13
Demonstrations given	32	40
Lectures with lantern	12	6

There was an able paper by J. M. Buchanan, Franklin, on "Spring Management," explaining the use of two stories for winter and early spring; another by J. Ivan

MR. Crowfoot, on page 37, January, tells us that his honey was all sold by Nov. 1. It is somewhat surprising the way extracted honey went this year. However, we have been able to get enough of late to supply us until the new crop comes in.

* * *

The editor, page 57, says one producer re-tailed his entire crop of 46,000 lbs. It would be interesting to know whether he was located in a rural community or near large towns or cities. [He lives in a rural community but drives around to the larger towns with his honey. He also attends large gatherings of people on special days. In this way he introduces his honey everywhere in his locality.—Ed.]

* * *

On page 52, January, M. H. Mendleson, we are told, allows no handling of comb honey after sundown, which we are given to understand will prevent the development of the larva of the wax-moth on the combs. Not so here in the East. If a super is taken off and sealed at once, but left where warm, worms are almost sure to appear if there is soiled comb or an open cell of pollen. When there are moths, bees evidently carry their eggs about the combs on their bodies, and drop them in all sorts of places inside the hive or on the section combs.

* * *

I have sometimes wondered if it would not pay to have standard glass honey-containers. At the present time we have to depend to some extent on containers manufactured for those who put up pickles or olives or other groceries. Most bottles are made to hold so many ounces of water; and as honey weighs one and a half times as much as water, it often gives us an undesirable weight. Again, if there were standard sizes that could be made in large quantities they could be made cheaper. Alas! how much trouble "many men of many minds" make!

* * *

The writer of the Texas department, page 53, seems to think that a heavy flow of honey here in the North would check swarming the same as in Texas. Not so hereabout. The past season we had an unusually heavy flow, and bees swarmed to match and kept it up until the heavy flow was over, but we were working for section honey.

SIFTINGS

J. E. Crane

"The wealth of the California wild flowers cannot be imagined by one who has not seen them in their fullest glory," says Mr. Chadwick, page

51. Doubtless he is correct; yet I sometimes think we have more here in New England than we appreciate. I have been surprised in riding over the state during the last few years to notice the fields of flowers, one white, another yellow, and another pink or purple. How much more we might enjoy if only we had eyes to see!

* * *

The experience of Mr. Macey, page 1127, as to how far bees will fly, is of rather unusual interest. His experience, however, does not prove that even his bees were not in the habit of flying a mile or more. After the storm reported, the bees may have flown for half a mile or more, and, finding nothing, may have returned to the hive and given up the search. Again, the result of the storm may have kept the sweet clover from yielding honey. I have known a thunderstorm to stop the flow of honey so completely, altho the pastures remained white with clover bloom, that little or no honey was gathered afterward.

* * *

In a footnote, page 1113, Dec. 1, the editor says it is bad practice to sell one case of honey for \$2.75, another at \$2.50, and another at \$2.25. Now I want to ask a question: Do the western beekeepers sell by the case without regard to weight? With our present law every section must be marked and we are advised to place each weight in a case by itself. So we have cases weighing from 16½ to 21 lbs. if we put up 11 oz. for No. 1. If the price is, say, 15 cents per pound net, the lighter case should sell for \$2.37½, while the heavy case should sell for \$3.15—a plain difference of 80 cents per case. Here in the East, dealers seem to be a little particular, and want to pay only for what they get and are willing to pay more for a case weighing 21 lbs. than for one weighing 16 or 18 lbs. [Practically all comb honey west of the Missouri River is sold by the producer by the case. The various grades, however, require certain weights per case and the price is based on weight as well as grade.—Ed.]

ON January 26, Representative

Louis H. Scholl introduced in that branch of the Texas Legislature his bill for the establishment, maintenance, and management of experimental apiaries. On January 29 this bill was introduced by Senator Carlos Bee, of San Antonio, into that branch. These apiaries are to be under the direction of the Texas Agricultural Experiment Station, and they are to be located at such places in the state as may be deemed advisable by the Director. An emergency is declared, and it is to be hoped that the bill will make rapid progress. An annual appropriation of \$6000 is provided for by this bill for the establishment and maintenance of the experimental apiaries. Untold good will be done the beekeeping industry of Texas if this bill is passed by the legislature and signed by the governor.

In Texas there are three primary honey-producing sections, and at least three more that are not quite so extensive. It is to be hoped that the apiaries can be located with regard to these areas for the purpose of solving the problems peculiar to each section. The demands of each section will vary from the others in the foundation principles of apiculture. In the northern section the greatest problem of the beekeepers is the spring management. There is usually a good supply of early pollen, and enough nectar from wild flowers, to cause the bees to raise considerable brood. But the dearth that follows up to the cotton flow is so long and severe that many colonies die of starvation, and all are considerably weakened, and consequently are not in the best condition for the cotton flow. In this section many advocate placing the hives in exposed places in order to retard spring activity as much as possible.

In the central (cotton belt) section the spring flow of horsemint takes care of the spring-management problem. The proper manipulation of outyards in this section demands attention. There are vast areas of cotton in cultivation; and to handle the yards properly to cover the most area should certainly result in greatly increased returns. In the large southwest section it will be difficult to solve the problems by work in a single locality. This section is divided by the honey flora, which will need

IN TEXAS

By F. B. Paddock, State Entomologist

more study. In one locality spring dwindling causes enormous losses. Immediate study should be given to this problem.

In this locality bees worked on peach bloom from January 15th to 25th. Pollen was being gathered in large quantities on January 30 from the elms along the creeks.

Altho the rainfall in this section is .70 of an inch below normal for January, rains have occurred that did great good. Storms have occurred over the state generally, giving much needed moisture. In some sections snow fell in very unusual quantity. Horsemint has been benefited very much by these rains. Our cultivated horsemint is looking very nice now.

In the extreme western section of the state the bees have come thru the winter in good condition and the beekeepers are looking forward to a prosperous spring.

In the Rio Grande section the fall honey-flow was so short that it was necessary to feed heavily during the winter. Now the spring flow is on in that section, and the bees have from three to six frames of brood. Inspection work was satisfactorily done in the middle of January in this section.

Most of the county beekeepers' associations have held their first meeting of the year and have elected officers for the coming year. Many of these associations hold four meetings each year, at such times as will bring up timely discussions on the seasonal management of bees. All of the associations are co-operating with the State Entomologist in the eradication of foul brood.

More Texas beekeepers will sell bees in pound packages this spring than ever before. In sections where bees build up readily in the spring it is said that such a disposal of bees partly takes care of the natural-increase problem.

A few of the larger beekeepers in a southwestern county are buying up all the bees that are for sale in that locality. It is evident they are giving little worry that the honey market will be flooded next fall. All evidence seems to point to the fact that some of the smaller dealers have been guilty of keeping the local price down.

TALK about winter weather! At this writing, Feb. 7, we are just emerging from the worst week of weather since 1894-'5.

Last Friday night the temperature in this vicinity (29th degree) dropped to 20; and the next night, Saturday, to 14 degrees; and since then we have had frost and freeze, one after another, till today for the first time the keen cutting edge of that north-west wind is losing its sharpness a little. All small orange-trees as far south as Kissimmee are doubtless cut down to the banks. Here many of the large trees are hurt—how badly no one will know till warm weather comes. All fruit is frozen, save possibly some groves that were warmed by fires, and it is doubtful if all of even that is saved. Too bad! Yes, bad; but it might be worse. If the larger trees are saved they will put out new growth with returning warmth, and may even have a crop of bloom and fruit. No use to cross a bridge till one comes to it, nor cry before one is hurt. It looks as if our orange honey would be at a premium this year. Cheer up, brothers! Another year is coming, and other sources of honey are available. Plan right now for bigger things.

Bees on the East Coast, and along river courses, where early pollen is available, have been building up with phenomenal rapidity. On Jan. 25, at the Wilson yard, we found drones flying from many colonies, and brood in five or more frames. That is very unusual for this vicinity. Drones seldom fly here before the middle of February, and often not till the latter half of that month. This was nearly a month ahead of the average time for drones. The warm month of January is accountable in part, and the excellent condition of the colonies last fall also. I believe strong colonies, with plenty of late-reared bees, and a hive stocked chock full of honey, two stories, will come about as near to insuring big colonies in early spring as anything on earth can do. But early pollen, from nature, is also essential to the most rapid early breeding.

Honey is well sold in Florida. Nearly all has been disposed of, and very little left. Many beekeepers are asking for more honey to supply their local demand. It is a pleasure to record this fact, and to note the same as being true in most states fur-



ther north. More honey is being used right here in our own state than ever before. A cracker-factory in Jacksonville will take all that is not fit for

table use; and the tables of our hotels and boarding-houses are now offering honey ten times to once a decade ago. All this is as it should be. It used to be said that Florida shipped everything out of the state, and then bought everything back again. Those times are no more. Now for the next crop!

We have been asked time and again for a booklet of information regarding conditions of beekeeping in Florida. Our peninsular position makes our environment unique, and hence our management distinct and different from that of any other state. Most of the printed matter of our bee-journals and bulletins and bee-books has been written with special reference to states further north. Florida sadly needs a manual especially designed for her own borders. The time seems ripe for such a handbook. It is needed, not only for beginners here, but also for incomers from other states who, tho they understand bees, do not know Florida in relation to bees. If some one does not throw a club at the editor of this department he may be foolish enough to attempt something in the booklet line himself.

The eucalypts of all northern and central Florida are frozen to the heart. Some of them had reached very commendable proportions, and bees were beginning to notice their blossoms not a little. These trees in this state seem to bloom almost every month of the year, depending on the variety and the soil.

This is the quiescent period of bees in the high pine lands, and, to a great extent, of those on the East Coast also. In the regions further south, the pennyroyal (*Hedeoma pulegoides*) is yielding, and has been doing so for a month or more. In those sections the bees are building up rapidly, and may even swarm

Dr. Bonney, December *American Bee Journal*, advises raphthalene instead of carbon bisulphide for keeping combs free from moth, and says that it will even kill the larvæ of the wax-moth. The powdered naphthalene will last much longer than the carbon bisulphide. (*American Bee Journal*, Jan., 1917.)

ECHOES from the great war and its tragedies have frequently reached the office from the far side of the Canadian boundary line during the last two years. A subscriber writes from Kitchener, Ontario ("Kitchener" is boldly rubber-stamped over "Berlin, Ontario," on his letterhead), saying: "Berlin, Ontario, has been wiped off the map of Canada, there being no longer such a postoffice." From another comes this: "I have just received news of my two boys being killed in action in France. I have no heart for my bees longer." And from many Canadians comes word of their going to the front.



Heard a well-known bee dignitary recently say, right in the open day of the office, that he once attended a state beekeepers' association (of a big state, too) that spent one whole afternoon discussing what kind of fuel to use in a bee smoker—and finally, at 5 P. M., concluded by general consent that every man had better use what he could get hold of.

If the Man-Around-the-Office could catch, some dark night and up a dark alley, the fellow over in the editorial end of GLEANINGS who promised the new A B C and X Y Z of Bee Culture some time last fall, that fellow would just naturally beg for his life—if he lived at all. That premature promise, in cahoots with a belated printing-plant, are together breaking short off the spinal column of all around the office.

Some things are right wrong (or partly right). The other day one of our typewriter girls turned this trick. She took off on the typewriter Ernest's dictation from a dictaphone cylinder of the editorial on national advertising, which he had headed "They Say It Has Helped." Dictation on a dictaphone isn't always clear. When the printer's copy had evolved from the dictaphone via Miss Typewriter Girl, the heading of this editorial on national advertising read, "They Say It's H—." Well, some do, so we hear.

How many of GLEANINGS' readers are acquainted with Mr. J. H. Donahey, who entertains them with his inimitable cartoons of bee things and situations? You may know that he is the famous cartoonist of

the Cleveland *Plain Dealer*; but here is more — a sidelight thrown on him by Cleveland *Town Topics*: "One of the most successful

and best-loved cartoonists in this country * * * with a mind that is a bubbling spring of originality and humor, with a heart that loves nature and his fellow-men * * * one of his diversions is the propagation of bees; and in the summer their chorus sings nearby while he may work or play." Yes, Donahey is a likable, lovable cartoonist-philosopher.

About stopping subscriptions on expiration. Well, a few don't like it, but very many more have written us just as this friend from David City, Neb., has done in these words: "I think you are on the right track at last when you adopt the new rule of stopping GLEANINGS at expiration of paid time. All first-class publications are doing this. It never did look right to me to send the paper beyond the paid time. I go up against that kind quite often, and when I get a statement I say some unkind things that don't do either party any good." We have had scores—and more —of just such letters as that.

A beekeeper from out the West said within hearing of the office cat the other day: "Frank Rauchfuss, of the Colorado Honey-producers' Association, is getting his now. He has done more for the honey-producers of Colorado than any other man alive. Just now the comb-honey market isn't all it might be—and, of course, Rauchfuss is to blame. When some beekeepers can't kick one fellow they'll kick another." Wasn't the Westerner right?

A visitor said to Huber Root the other day: "We would have been better off without any bee inspectors. Then the foul brood would have wiped out all the careless beekeepers, and only careful efficient beekeepers would be left in the field." So far as the Man - Around - the - Office knows, that visitor may be alive yet. Huber is, but he still looks shocked.

There is probably a mad one down in Jonesville, Lee County, Virginia. He sent a rush order to GLEANINGS the other day, but forgot the little detail of signing his name. Others do it. Then—"they're a nice lot, they are—never answer a letter."

ONE thing that the great greenhouse experiment has definitely established as a fact, beyond all doubt, is the value of a substitute for pollen in stimulating brood-rearing. Some good authorities have seriously questioned whether a pollen substitute, altho the bees worked on it, was

of any real advantage. This has been a difficult matter to prove, for so frequently there are a few cells of natural pollen in the combs that are unnoticed, or else the bees have access to fresh pollen from obscure early blossoms in the field.

As explained in the last issue, the one colony in the large greenhouse was destitute of pollen. The combs were looked over again and again, but no trace of it could be found. There was nothing at all except syrup and sealed honey. The queen had stopped laying, and was greatly reduced in size. Rye flour was thoroly dusted over the bees and combs. Altho the bees did not pack this into the cells (probably because not enough of it was given beyond the actual needs), the queen almost immediately began laying. This brood developed normally, was sealed over, and afterward hatched. Since there was nothing but lettuce in the greenhouse at the time, there was no possible way in which the bees could have secured nitrogenous food except by means of this rye flour.

After the brood that had been started from feeding the rye flour had been sealed over, or much of it at least, two combs of natural pollen taken from another colony outside the building were provided. The bees then, being assured of a good supply, began feeding the queen in earnest, and as a result in about two weeks' time she had sealed brood in three combs and had started lay-

CAN THIS BE DONE?

Proof of the Value of a Pollen Substitute in Stimulating the Rearing of Brood. Chapter III

By the Editors

sible, the drone comb and the outside comb of young unsealed brood were interchanged so that the drone comb would be just outside the worker brood.

On February 6 the queen again extended the brood-nest, jumping past the drone comb, and began laying in another worker comb next to it. The pollen in the two combs was nearly exhausted; therefore another comb of pollen was inserted at the side of the hive. We are expecting to get word almost any day that the queen has started laying drone eggs in the drone comb; but if she does not, we have made arrangements for getting combs of sealed drone brood from the South, so that there will be drones in time for the young queens that will be flying probably in April.

A feeder containing syrup and a comb of honey were hung at each end of the building, nearly 300 feet away from the bees. On January 30 the greenhouse apiarian wrote as follows:

As I stood for a time watching them, altho the day was somewhat cloudy, the bees would come from the hive, and, without an instant's hesitation, turn, some going to the east and some to the west, and, with a speed too great for my eyes to follow, start for the feed. Those returning made no

ing in a third one, skipping the comb next to the three combs of worker brood.

On January 31, with the idea of keeping the worker brood compact, in order that the colony might build up as strong as possible,

stop, but went directly into the hive. You see, when they come out of the hive, below them lies a field, practically an acre, of vegetation, and there is a genial spring atmosphere. Why shouldn't they fly?

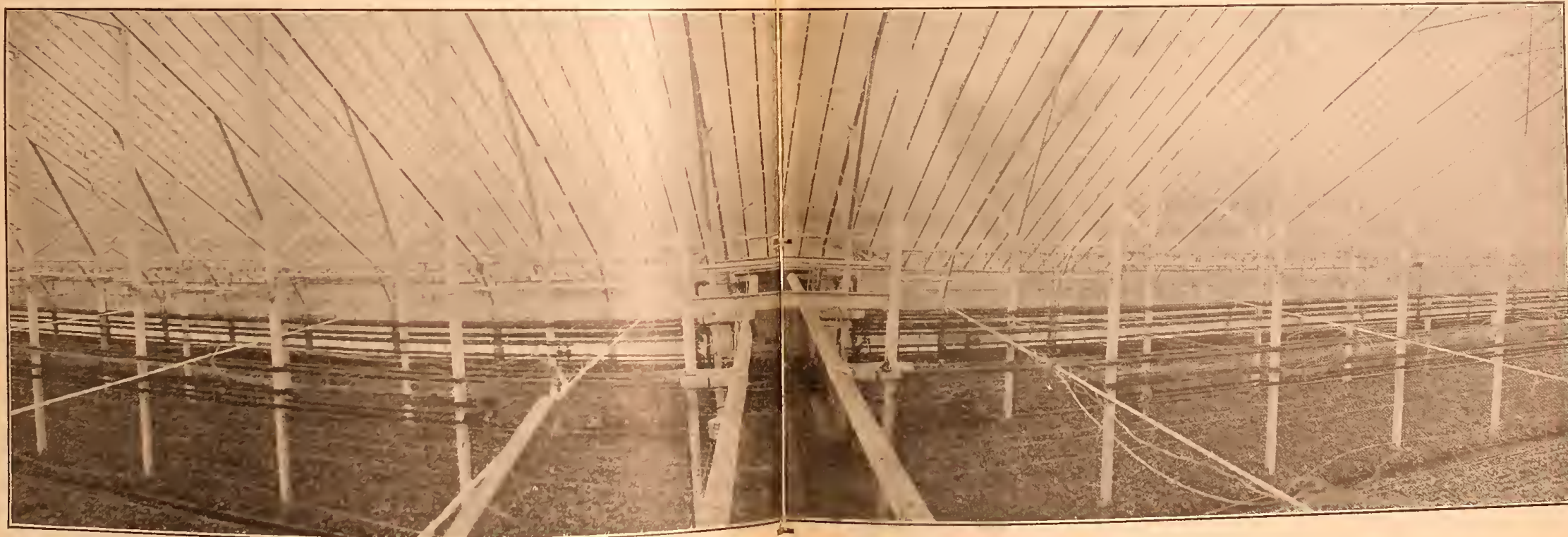
Each day cucumber seeds are being sown. The young plants are transplanted into pots and, later, set in the large building.



Basket at each end of the building holding syrup feeder and a comb of honey.



Young cucumber plants to be transplanted later into the large building.



About two-thirds of the greenhouse as the bees see it.

THE managing editor dropped in at the Puerden home one morning while the family were still at the breakfast-table. His hands were full of papers, and on his face was the look which a man wears when he intends to wheedle a favor out of some woman. All married women know that expression. I not only recognized the expression, but I had a presentiment that the papers contained honey recipes. Now, testing recipes is interesting to a certain extent; but there is a limit. Something over a year ago, when the Airline Honey-book was being compiled, this same editor cajoled all his women friends into testing dozens and dozens of honey recipes. He has fewer women friends now. There was rebellion, even in his own household. But I have known him many years; and then, too, the Puerden family are extremely fond of honey—comb, extracted, honeyspred, and honey cookery.

To return to the editor, he wanted help about a food page for GLEANINGS. It is conceded by all that the most celebrated cooks in the world are men; but if there is anything more helpless-looking than the average man with a cooking recipe in his hand, I have yet to see it. This particular man greeted my half-joking proposition to help him so joyfully, and with such touching confidence in my ability, that I immediately sat down and planned a simple dinner menu wherein honey occurs not only in each course but as an ingredient in practically everything served.

The whole-wheat bread was made with a little honey instead of sugar in the sponge; two tablespoonfuls honey to four loaves of bread.

OUR FOOD PAGE

Stancy Puerden

MENU

Baked ham
Candied sweet potatoes
Fruit salad on lettuce
Whole-wheat bread
Chocolate pudding
Whipped cream

BAKED HAM.

1 slice ham, an inch thick; 1 tablespoon extracted honey; butter or ham fat; water.

Place the slice of ham, an inch thick, weighing about 2 pounds, in a baking-pan. Spread it thinly with the honey; dot it with bits of butter or fat trimmed from the meat; pour in water to the depth of $\frac{3}{4}$ inch, and bake very slowly for two hours. Replenish the water if it cooks away too rapidly. The ham, when done, should be very tender, with the flavor of Virginia sugar-cured ham.

CANDIED SWEET POTATOES.

3 lbs. sweet potatoes; $\frac{1}{2}$ cup extracted honey; 2 tablespoons butter.

Boil the potatoes; peel and slice lengthwise in pieces half an inch thick. Spread each slice with honey; arrange in one layer in a shallow baking-pan; dot with bits of butter; salt slightly, and bake until delicately browned, about half an hour. It is well to pour a very little water in the pan to prevent the potatoes scorching.

FRUIT SALAD.

4 large tart apples; 1 banana; 1 orange; $\frac{1}{4}$ lb. dates.

Peel the apples, banana, and orange, and cut in small pieces. Stone the dates and cut fine. Mix the fruit with a little of the following dressing; arrange on crisp lettuce leaves, and pour over more of the dressing.

SALAD DRESSING.

1 teaspoon salt; $\frac{1}{2}$ teaspoon mustard; 2 teaspoons flour; 3 teaspoons extracted honey; yolks of three eggs; $\frac{1}{2}$ cup vinegar; 1 cup sweet milk; 1 tablespoon butter or olive oil.

Put vinegar in double boiler to heat. Mix salt, mustard, and cornstarch; add egg yolks and honey, and beat until smooth. Gradually stir in the milk; and when the vinegar is near boiling add the mixture and cook until smooth and thick. Take from the fire and stir in butter or oil.

CHOCOLATE PUDDING.

2 $\frac{1}{2}$ cups milk; $\frac{2}{3}$ cup extracted honey; 2 squares unsweetened chocolate; 2 tablespoons cornstarch; 1 egg; $\frac{1}{4}$ teaspoon salt; 1 teaspoon vanilla.

Put the milk, the chocolate shaved fine, and the honey in a double boiler and bring to boil. In the meantime dissolve the cornstarch in a little of the milk; add the egg slightly beaten, and the salt. Pour the hot mixture over the cold, stirring constantly; then put all in the double boiler and cook until it thickens. Serve in sherbet-glasses with whipped cream.



BY way of setting our aim high for this season of 1917, let us consider for a moment the report of one of our backlot

friends. Mr. E. J. Thompson, an insurance agent in Andover, Ohio, writes that in 1916 he took off 346 pounds of extracted honey and 452 sections from seven colonies, spring count, and increased to sixteen colonies. The honey sold promptly, the cash receipts being \$89.25.

Now by way of forestalling disappointment from blasted hopes, let us for another moment consider another report. Mr. J. C. Parks, a farmer, fruit-grower, and beekeeper of Scottsboro, Ala., writing in the late summer of 1916, says, "The sourwood flow was almost totally lost and the floods have destroyed the goldenrod and aster in the swamps and lowlands. I guess I shall have to feed this fall again. The season set out early to be a good one, the best in years, but the weather spoiled all these fine prospects."

Not having heard from Mr. Parks later, I do not know just how the year did finally come out for him. But the point is that, while honey crops will, of course, be greater or less according to the experience and skill of the beekeeper, it is the season itself and the weather conditions thereof that decide the vital point of whether there shall be any crop or no crop at all.

SUMMER STANDS AND WINTER CASES.

Mr. A. Gordon Dye, of Rochester, N. Y., "a backlotter of only two seasons' experience," as he frankly terms himself, has been making a particular study of convenience and economy in apparatus, and reports in the following extract how he has worked out the winter-case problem.

"A year ago in trying to decide how best to winter my six colonies, I read up on the various ways of wintering, and as a conclusion decided in favor of the quadruple winter case. I built two of these last fall and found them satisfactory for winter protection, but heavy and cumbersome to put up, take down, and store away. So this summer I developed a summer stand which may be readily changed into a winter case. The summer stand is a platform $4 \times 4\frac{1}{2}$ ft., resting on legs one foot high. The framework of the platform is made with four six-inch boards, nailed at the corners. The legs, 2×4 's, 1 foot long, are nailed to the inside of the end boards, set

Beekeeping as a Side Line

Grace Allen

in two inches from the corners. Three narrow boards are then cut to fit crosswise inside the frame, one for the center and one for each

end, to be nailed to the insides of the legs and to the side pieces of the frames. This makes a light and strong frame for the flooring, which may be of any material desired or convenient.

"By setting the legs two inches from the outside board, a two-inch square hole is left to receive the lower end of my corner posts when I wish to set up my winter cases. For these cases I take 2×4 's, 30 inches long, and fit them to the corner sockets by notching away a section 2 in. by 6 in. I then build my sides and ends separate, and secure them in place by hooks and staples attached to the corner posts. The roof is made in two parts with a cleat at each end which fits outside the case. The roof may be covered with prepared roofing material, an overlap being left on one piece to prevent snow and water getting in at the peak.

"In the summer the hives are moved out near the corners for convenience in working around them, but in the winter they are concentrated in the middle and raised on small hive-stands made by nailing two narrow strips, 26 inches long, on top of two boards, 3 in. by 14 in. This allows packing material under the hives, and by laying a couple of boards, separated by cleats, across the front end, a shallow tunnel is provided for the bees, to corresponding slots in the end pieces of the winter case.

"I find cases made in this way easy to handle and store, as there is nothing but flat pieces and none very large or heavy. By removing either side of the roof, two hives become easily accessible."

The overlapping piece of roofing will need to be held down in place, or in stormy weather the wind may blow it back and let the rain beat in anyway. We have had this experience with a similar overlapping piece on an outdoor hopper in our chicken-yard. And the corners of the case, secured by hooks and staples, will need to fit perfectly not to allow the rains to seep in and the packing to become wet.

But this use of the summer stand for the floor of the winter case is certainly good management, and is right in line with what Mr. Bartholomew advocates,

A. Y. Z., Oelwein, Ia. — Is this a good time to start with bees? What would be the probable cost?

A. This is the very best time of the year to start, not with the bees themselves, but with a preparatory study to fit yourself for the work with the bees in April or May. A beginner having had no previous experience or having no knowledge of the subject at all, is quite likely to make some mistakes—mistakes that are expensive. No amount of study will take the place of actual experience, it is true; but a little reading in advance will ordinarily prevent most of these early mistakes. Bees need very little care, it is true; but the care that is given should be the right kind.

As to the cost, that will depend somewhat upon the way in which you desire to start. We do not advise any one to start with more than one or possibly two colonies. In almost every instance, if some one writes us for advice, saying that an apiary of thirty or forty colonies can be bought for a very low price, we advise buying but one or two, for the bees increase so rapidly that there is really no need of buying a large number at the start. Only an experienced beekeeper should undertake to buy an apiary outright.

Iowa is one of the great honey-producing states, and we see no reason why you should not succeed, whether you keep bees as a side line, or, later on, take them up as a main business.

O. P. H., Floresville, Texas.—How may queens be introduced to bees in pound packages before shipment?

A. The queen may be merely dropped in with the other bees; but if you wish to be doubly sure that she will not be molested see that the bees in the package come from two different sources. They will then have two different colony odors, and will, therefore, not offer to injure the queen.

C. A. C., Lincoln, Del.—My bees are all in ten-frame hives, and are run for comb honey. I also look after the bees belonging to a neighbor who has two eight-frame colonies. He "just wants a little honey," but does not care for any increase. Last fall I put in two young Italian queens for him. By next spring they will, no doubt, be needing more room; and, having two more eight-frame hives and supers, I thought Dr. Miller's plan of a two-story brood-chamber would be a good one to follow. I have his book, "Fifty Years Among the Bees," but he gives many plans. I should like to have him answer the following questions:

1. Can the two stories remain during the heavier and early part of the main honey-flow, say up to July 1, and then reduce to one story? I have no extractor.

2. In reducing the number of combs, how can I let the brood hatch out and at the same time keep bees from storing honey in the cells so I can have those combs for next year, thus keeping the number of colonies down to two?

3. Next year, would the plan of building up work

GLEANEED BY ASKING

E. R. Root

all right if all or nearly all of the extra frames contained drawn comb instead of foundation?

4. I do not see how one can run for comb honey with only two colonies without making some increase, or

having some place to distribute combs, as in the shaken-swarm plan.

5. If I were to leave the colonies in two stories most of the summer I would have a lot of the combs full of honey with no honey in the supers. Is this true?

6. When giving another story for brood, do you think it would be safe to put super foundation in two upper and two lower outside frames? These frames would probably be filled with honey, and this then could be cut out for bulk comb honey. Would the bees put pollen in them? My friend has two shallow-frame supers and three comb-honey supers.

7. With ordinary young or year-old Italian queens, is it possible to keep two stories for brood after the main flow opens, or is it necessary to reduce to one story in order to get bees into the super?

8. How would it be to reduce the amount of room with division-boards, so that there would not be over twelve combs in all?

9. I have just seen GLEANINGS for December 1. Is the plan given in second paragraph, page 1130, necessary? Would it not be advisable to use some baits?

10. Please explain the plan of cutting out the cells and placing them in hives, as given in "Fifty Years Among the Bees," page 262.

11. With this method is any nucleus or nursery necessary?

12. In this same book, page 263, what is done with the old hive? Could each swarm be hived on three or four combs and then each old colony united with a swarm put in the place of each?

Dr. Miller replies:

1. Yes, you can leave the extra room as long as you like.

2. I know of no way to keep the bees from storing honey in cells as fast as young bees emerge from them, provided they have any honey to store. But you may accomplish your purpose in this way: Take the extra story of brood, and set it on top of the upper super that is on the old hive, giving this story on top a bottom-board and entrance of its own, so that there is no communication between the two hives. All the field bees will join the lower hive, leaving only young bees that will gather scarcely more honey than they will consume; and in three weeks you can take the upper hive away, brushing all its bees in front of the lower hive.

3. Yes, drawn combs will be as good as if not better than foundation.

4. Neither do I. But if there's no other place for them, they might be piled on a stand of their own, with barely bees enough to take care of them, these bees to be united later with the full colonies. Or you might keep the combs without any bees, fumigating them occasionally. But the very best way to keep combs thru summer is in care of bees.

5. No. In a good season a strong colo-

ny in two eight-frame stories ought to do work in section-supers.

6. It might do in the shallow supers. In the lower story there would certainly be pollen.

7. You will get section-work either way, but generally more with the one story.

8. All right.

9. It is not absolutely necessary to reduce to one story, but it is generally better. At least one bait section is always given in the first super, no matter what plan is used.

10. Cut out the cell with the small blade of a pocket-knife, and fasten it upon the comb with a staple, as shown in Fig. 85 in "Fifty Years."

11. No nucleus nor nursery is needed to produce the cells; but after they are produced they may be used in a nucleus, a nursery, or a full colony.

12. Referring to the book you will see that I say, "put B on a new stand." That may be any place you like—of course, not in the place of any other colony. C and D are treated the same way.

J. C. H., Lowell, O.—1. Last season I gave my bees foundation with splints, also with wire; these they soon gnawed along each side of wire or splints and caused the combs to go to pieces when filled with honey. The bees then rebuilt the comb their own way which consisted mostly of drone-cells. This year I gave some medium brood foundation without wire or splints which in some cases collapsed from weight of honey. What is the trouble?

2. Should I when trying to save a valuable queen by caging give her some candy or will bees feed her thru wire in cage?

3. Should a queen-cell in a wire-cloth cage be provisioned with candy? Some of my virgins which had none died when only a few hours old.

Dr. Miller replies:

1. It is uncertain just what the trouble was, but the likelihood is that at the time the foundation was given there was little or no honey coming in. At such times bees are likely to gnaw foundation, and it should always be given when a good flow is on. Another possibility is that the wires or splints were not well embedded in the foundation. Splints, previously to being used, should be saturated with hot wax.

2. No need of candy if she is caged among her own bees. If caged among strange bees, they sometimes fail to feed her; so it is better to have candy in the cage.

3. It depends on conditions whether a virgin will be fed by the bees and it is safest to have her cage candied.

E. P. W., Chadron, Neb.—If a colony comes thru the winter with a fair supply of honey, enough to last until the first honey-flow, do you recommend stimulative feeding for brood-rearing? If so, what kind of syrup and how much?

A. For stimulating brood-rearing, half a pint of syrup a day is enough; made by mixing one part of sugar to two parts of water. However, if a colony has stores enough to last until the main honey-flow,

so that the bees do not have to feel scrimped, we do not recommend feeding. Better let well enough alone; and we believe that in the majority of cases the colonies are in better condition if enough stores can be provided in the fall to last until the next honey-flow the following spring. This plan saves a lot of expensive work besides.

A. R. D., Texas.—Do brood-combs ever get too old to use again? We are told that the cocoons in the cells in such combs become so small that bees will not raise their young in them because of their smaller size.

A. As long as combs are regular, are not disfigured, and are all worker, they can be used indefinitely. When the cocoons accumulate, the bees remove the excess of them, keeping the size of the cells always large enough for the rearing of brood. Old combs are usually preferable for extracting as compared with new ones. While the honey may be a little darker at times in the old combs, it is seldom there is any trouble of that kind. As a general rule, we may say that old combs are the beekeeper's best stock in trade.

B. F. M., Kearney, Mo.—I have been operating my bees without smoke as much as possible, but I find I need it occasionally. When I use smoke it stirs the bees up badly. What is the trouble? Do I use enough smoke? In fact, what is the best way to open a hive so the bees will cluster? I cleared \$8.00 per colony with an increase of 50 per cent last year.

A. The matter of using smoke is one concerning which no definite rule can be given, for no two colonies are exactly alike in this respect. Occasionally bees can be handled better without smoke. In general it is a good plan to make a practice of using a little smoke just before the bees begin to crawl up between the top-bars, in order to avoid letting an angry bee fly out at you. If one bee starts, others are likely to follow, and it is far better to prevent these angry bees from getting stirred up than it is to conquer them after they try to sting.

H. W., Spring Mills, Va.—In moving an apiary about fifty yards, at this season of the year, would there be any danger of the bees ever going back to the old stand?

A. After settled cold weather comes when there are no warm days or fly days you can move bees a short distance in the beeyard without very much trouble, altho if you should have a warm day within two or three weeks after moving the bees there might some of them go back to the old stand. You would need to look carefully to this at the time the bees are flying; and if so, pick them up in a bunch and carry them back to the new stands.

D. B. C., Illinois.—What is the white substance on top of extracted honey that has been heated?

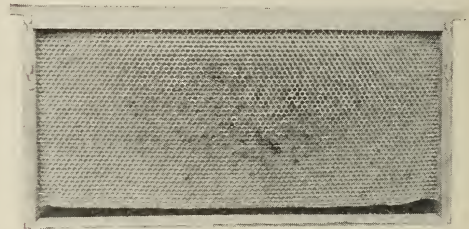
A. It is a sort of foam, consisting of minute bubbles containing either air or gases, sometimes seen on top of honey in a sealed bottle.

IN Lesson 1 we considered the various parts of the beehive. We found that the average hive consists of six parts — the hive-stand, the floor, the hive-body, or brood-chamber, the super, the inner cover, and the outer cover. The brood-chamber, which might be called the living-room, is the most interesting part of the hive. That part belongs to the bees themselves, and it is very rare that the beekeeper takes away any of the honey which it contains. The honey there is for the bees' own use. The surplus honey is stored in the "super" above the brood-chamber. In this lesson we shall consider the interior of this brood-chamber, the combs in which the brood is reared and in which the bees store the honey, and something concerning the early life of the bees themselves.

Many beginners ask where the bees get the wax—whether they gather it or make it. Beeswax is a secretion that issues from the wax-glands after the bees have been feeding heavily on honey or on sugar syrup. It is really a fatty secretion, altho beeswax itself

or masticating it, so to speak, it becomes the pliable and ductile substance used in making the combs. There are many mineral and vegetable

waxes that resemble beeswax; but for its ductility beeswax has the highest melting-point of any wax known. If the honeycombs were made of paraffine, for instance,

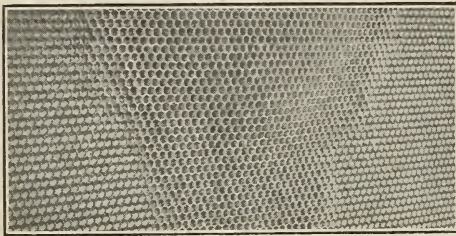


New comb just built. It is creamy white save for an occasional cell containing a little pollen or bee-bread.

they would not stand the high temperature in the hive, especially on a hot day, but would sag or melt down.

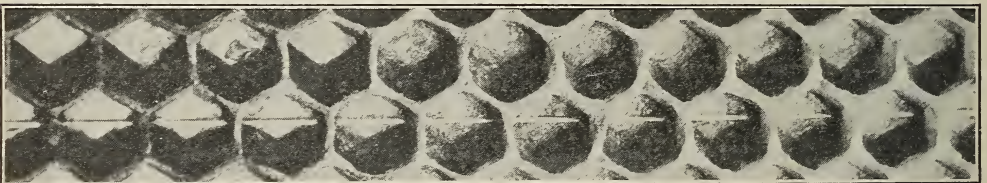
It has been estimated that bees must consume from five to fifteen pounds of honey in order to produce one pound of wax. As explained in the last lesson, in the production of extracted honey the combs are used over and over again, so that the bees do not have to build new ones each time. In making comb honey in the small sections, the comb is sold right with the honey, of course, and the bees must necessarily build new combs when the finished sections are taken away. For this reason a colony of bees can produce only about half as much comb honey as they could of extracted honey.

For more than forty years what is known as "comb foundation" has been used by practically all beekeepers. A very thin sheet of wax is run thru two metal rollers on which is stamped a representation of the base of the cells of the honeycomb. When the sheet of wax is run thru these rolls it

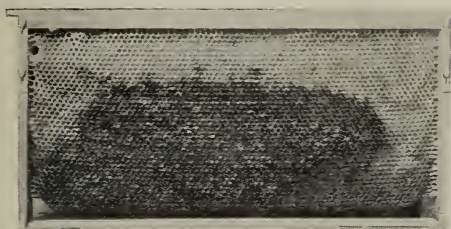


A full-sized sheet of comb foundation which the bees have just begun to draw out into comb. The central part shows the deeper cells.

is not a fat and is not greasy. The opening to these glands is on the under side of the bee's abdomen; and when the wax first issues it is a liquid which soon hardens into pearly-white scales. The bees transfer this wax to their mandibles; and by mixing it,



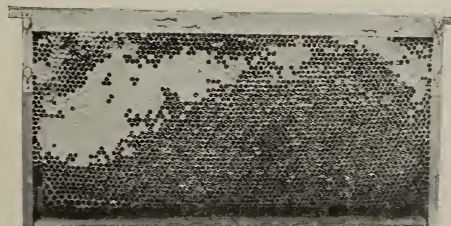
An enlarged view of comb foundation. At the left the wax is shown just as it comes from the rolls; the cells on the right have been partially drawn out by the bees. The reinforcing wire is shown at the base of the cells.



A comb that has not been in use very long. The upper part that has contained honey only is still white. The lower part, where the brood was reared, has turned dark.

becomes what its name implies—a foundation for the comb. The bases of the cells are formed, and the side walls are started. The bees grasp these very shallow walls and “draw them out” and build on with new wax, the work being so perfectly done that it is impossible to tell where the old wax leaves off and the new begins. This comb foundation is used in the small section honey-boxes as well as in the large frames in the brood-chamber. It serves a double purpose: it furnishes a good deal of the beeswax required for building the comb, and it also centers the comb in the frame or section as the case may be, and compels the bees to build it straight. As a rule, bees would just as soon (in fact, a little rather) build the combs crosswise of the frames or sections, and also curve them or make them crooked, thus adding to their strength. In the large frames, in order to prevent the combs from sagging or from breaking down when filled with honey or brood, fine horizontal wires are imbedded in the comb foundation; then, even tho the combs later on be extracted in the centrifugal honey-extractor mentioned in the last lesson, there is little danger that they will be broken out of the frame. No matter how perfectly the base of the cell is formed by the roll, the bees alter it slightly, making it a little thinner and a little more granular in appearance.

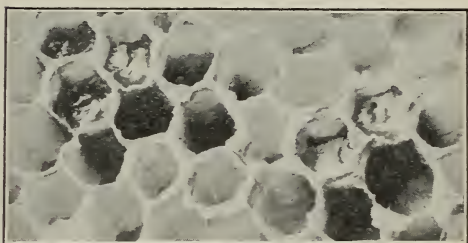
When the comb is first built it is creamy white in appearance. It very soon becomes



After a comb has been in use a year or two it becomes almost black. This, however, does not detract from the value of the comb in the least. (The white part is capped honey.)

“travel-stained,” however—that is, the bees in walking constantly over it and over the fresh propolis (the pitchy substance which they gather from certain buds) soon stain the white wax so that it has a brown color.

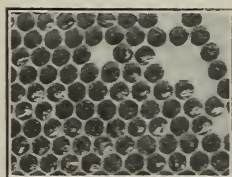
Moreover, as soon as a few generations of brood are reared in the cells the comb becomes quite black, and in time black all over. This is no indication that it is not perfectly good, however, for combs have been in use continuously for thirty or forty years. The older they are the tougher they become, owing to the many layers of cocoons.



Pollen or bee-bread in white comb. The bees pack the pollen in the cells, for future use. They never entirely fill the cells, therefore if a cell is partly full of a semi-hard dark substance, it is almost sure to be pollen.

Bees do the greatest service to mankind in pollinating fruit-blossoms. They fly from blossom to blossom and carry the pollen from one to another so that cross-pollination is accomplished far more effectively

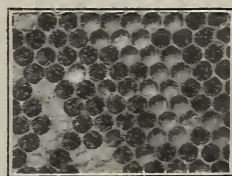
than could be done by the wind. A part of this pollen the bees carry to the hives packed in huge pellets on each of their rear legs.* This pollen furnishes the nitrogenous food for



Pollen and capped honey in old black comb.

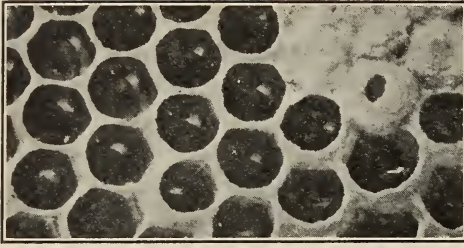
the bees themselves but more especially for the young larvæ. Without it brood-rearing can not be carried on; and if there is no natural pollen, substitutes sometimes have to be provided such as rye meal or bee flour. On page 188 is an illustration of bees working on a substitute for pollen.

A good queen is able to lay two to three thou-



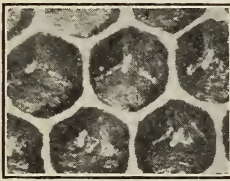
Capped brood in the cells at the left, pollen at the right.

* See the picture on the cover of this issue.



Unsealed, partially sealed, and fully sealed honey. Capillary attraction prevents the unsealed honey from running out.

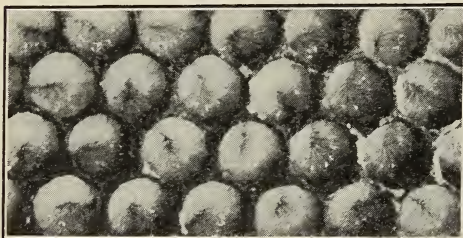
sand eggs in a day. In fact, the eggs that a prolific queen can lay in twenty-four hours, if all put together and weighed, would equal nearly two and a half times the weight of the queen herself. This is possible only by reason of the fact that the queen is fed almost constantly by the bees. The eggs are about the diameter of a pin, and when the light is just right they are



Eggs laid by the queen-bee are always in regular order, uniformly attached to the bottom of the cells. Ordinarily the eggs are not as plainly seen as would appear from this photograph; for the cells, nearly half an inch deep, cut off much of the light.

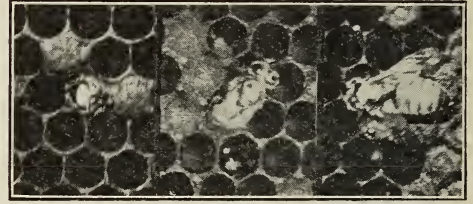
plainly visible fastened to one side of the bottom of each cell. The brood ordinarily occupies the lower part of the comb, the honey being above it. A good queen starts laying in the central part of the comb and extends her laying in the form of a circle so that the brood is always compact.

In three days' time the egg hatches into a tiny larva scarcely larger than the egg itself. It is abundantly supplied with the milky chyle food by the young bees which act as nurses for the first two weeks of their lives, and under this care it grows with astonishing rapidity. In about three days from the time the eggs hatch, the larva is so large that it almost completely fills the



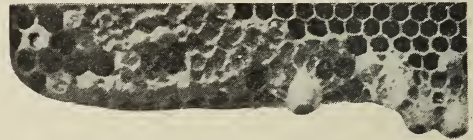
Larvæ four to five days old, curled up in the bottoms of the cells.

bottom of the cell. In another three days it stretches out lengthwise in the cell, and about that time is sealed or capped over with a dark-colored capping made of fibrous material, usually refuse wax gathered up about the hive. This capping appears almost like solid wax, but is really quite porous in order to provide air for the rapidly developing bee inside. In eighteen days from the time the eggs hatch, or twenty-one days from the time the egg was laid, the bee, now perfectly developed, begins to cut thru



Worker bee gnawing the capping of the cell, climbing out and crawling unsteadily over the comb.

the capping, and within a short time it struggles out—rather wrinkled and pale-looking, but fully developed—a mature bee. All day it crawls unsteadily over the combs, jostled about and unnoticed by the other bees, apparently, and then it finds a cell of honey and begins to feed. From this time on it acts as a nurse-bee, taking care of the larvæ, secreting the chyle food, and helping to keep the brood warm. After two weeks it takes up the duties of a regular field-bee.



Sealed worker brood, sealed drone brood, and unsealed queen-cells (at the right).

The queen is the only true female in the hive. The workers are undeveloped females; the drones, the males. Normally there is but one queen in the hive even though there be as many as fifty thousand workers. The queen mates only once but is able to lay fertile eggs thereafter at the rate of several thousand a day for the rest of her life. Queens sometimes live six or seven years but usually they are not kept longer than two or three years. The drones do no work, their sole purpose being to fertilize queens. In order that there be plenty of them, however, at the time the young queen takes her flight the colony may contain quite a number of drones—sometimes hundreds.

THE Montana Beekeepers' Association held its annual meeting at Bozeman, Feb. 1, 2, 3. The following officers were elected: President, B. J. Smith, Jr.; Vice-president, H. E. Tolliver; Secretary, H. E. Clift.



Word comes from Idaho (Feb. 10) that bees have had a flight and are in fair condition, altho the winter has been colder than usual and more prolonged.

The National convention at Madison adopted a resolution to stand by President Wilson in the war crisis, and this resolution was wired to Washington.

At the Washington State Beekeepers' convention, held Dec. 20, 21, the following were elected to hold office for 1917: President, J. B. Ramage, North Yakima; Vice-president, J. B. Espey, Chehalis, Wash.; Treasurer, H. L. Hart, North Yakima; Secretary, G. W. Rolin, White Swan, Wash.

INDIANA CONVENTION.

We are requested to announce that there will be a one-day beekeepers' meeting on March 9, at Washington, Ind. This will be held under the auspices of the Indiana State Beekeepers' Association, and it is hoped to have more of them if this is a success. The program has been prepared.

THE MASSACHUSETTS CONVENTION DURING FARMERS' WEEK, MARCH 27 TO 30.

Concerning the annual beekeepers' convention, to be held during Farmers' week at the Massachusetts Agricultural College, Amherst, we would say:

The novel feature of the year is the devotion of one session, namely, Tuesday afternoon, March 27, to the discussion of the value and uses of honey in the home and in cookery. Miss B. E. Shapleigh, of Columbia University, will give the cooking demonstrations. Dr. Gates will prepare for exhibition a collection of type honeys as well as of some brands. This is presumably the first effort to introduce honey for home consumption by means of Farmers' week or thru college-extension work.

The program has not as yet been prepared. The sessions will open, however, Tuesday, March 27, at 9 A. M., and continue until Thursday noon. A number of prominent

speakers are being engaged. The Thursday program, beginning at 9 o'clock, will include a joint meeting of the Hampshire, Hampton, Franklin Beekeepers' Association, Mr. O. M. Smith, of Florence, President, under whose auspices the program will be conducted.

SEVERE FREEZES IN FLORIDA.

Reports show that the cold weather has gone down the coast and into Florida, where it has done much damage. Severe freezes have occurred in and about Jacksonville, and the cold has gone down clear below Tampa, where, it is claimed, frost never goes. A. I. Root, at his winter home in Bradentown, in a letter dated Feb. 6, writes: "Our nice garden is all frozen, and almost everything killed. We are planting it over."

So far as we have learned, the frost has not been severe enough to damage the orange-trees themselves, altho the fruit has been frozen where it has not been picked. What effect this winter is going to have on beekeeping in Florida is yet to be determined.

MEETING OF THE NORTHWESTERN KANSAS BEEKEEPERS' ASSOCIATION.

The Northwestern Kansas Beekeepers' Association was formed at Manhattan, on Jan. 22, with a membership of 21. A constitution was adopted, and the following officers were elected. President, D. Von Rieson, Marksville; Vice-president, John W. Lewis, Manhattan; Secretary and Treasurer, Harry A. Huff, Chapman; and two directors—Samuel Winsor, of Wakefield, and C. H. Failyer, of Manhattan. A petition was prepared and sent to the Kansas Legislature, asking them to vote for an appropriation of five thousand dollars for the next two years for fighting foul brood in the state.

THE OHIO STATE CONVENTION.

The Ohio State convention, held in one of the buildings of the State University in Columbus, Feb. 1 and 2, while not largely attended, was one of the best meetings at which we have been present. We had the honor and pleasure of having Mr. R. F. Holtermann, one of the best honey-producers on the continent, present, and also the

two Misses Fowls, who, with their father, are largely engaged in keeping bees at Oberlin, Ohio. Both Mr. Holtermann and the Fowls girls were kept on the platform answering questions; and the replies received were exceedingly interesting and valuable.

The report of the Ohio inspection work by Inspector Ames showed that excellent work had been done in the control and elimination of bee diseases.

The convention was held during farmers' week; and it was apparent that many beekeepers who were also farmers were attending some of the other conventions—probably having a large interest in actual farm work itself.

* * *

OHIO STATISTICS.

Mr. John Eckert, a student in the apicultural department of the Ohio State University, Columbus, is gathering beekeeping statistics of Ohio bees and beekeeping. He is sending out blanks, and earnestly requests that Ohio beekeepers co-operate in giving him the necessary data. As soon as he can collect such data he will give the result to the general public.

* * *

THE NATIONAL CONVENTION.

Despite severe weather and interrupted railroad facilities, the National Beekeepers' Association held its 47th annual convention at Madison, Wis., on February 6, 7, and 8, with about threescore earnest beekeepers in attendance. On the day before the meeting a number of prominent beekeepers over the country received a telegram from President Francis Jager saying that no trains were moving between Chicago and Madison, on account of storms. This telegram led those who received it to conclude that the meeting would have to be called off, and so they did not attempt to reach Madison. This, undoubtedly, accounted for the absence of such prominent beekeepers as Morley Pettit, E. D. Townsend, Frank Pellett, B. Copenhagen, and others. We know for a certainty that it accounted for the absence of E. R. Root, who was already on his way when the telegram (forwarded) overtook him and he returned home.

The reports of this meeting that have reached us are all of an enthusiastic nature. Wesley Foster (of GLEANINGS' staff) from Boulder, Colorado, attended, and this is the way he characterized the meeting: "What a meeting it was! The most animated of discussions, and not a minute wasted! All was harmonious, and there was no attempt

to dictate; and the unity of purpose pre-sages a useful and truly national association. The wandering in the wilderness has apparently ceased, and we have hit the trail. Every one of us is wiser; and those of us who are not wiser will not be able to hinder further progress. The meetings were all devoted to business and business only. This does not mean that the National Beekeepers' Association is going into business and incur debt—not at all. But it is going to enter business sufficiently to benefit its members."

Officers were elected as follows: President, Francis Jager; vice-president, D. C. Polhemus; secretary-treasurer, John C. Bull; executive committee, Francis Jager, D. C. Polhemus, John C. Bull, F. E. Millen, and W. M. Copenhagen. Mr. Millen and Mr. Copenhagen hold over one year.

The work of the National is now divided into three principal activities as follows: Industrial; educational and scientific; and legislative. President Jager appointed chairmen of these divisions as follows: Industrial, D. C. Polhemus; educational and scientific, Dr. E. F. Phillips; legislative, Frank C. Pellett. These chairmen are to select their own assistants.

The National is to print its own annual report, which will be sent to its members, and may print quarterly bulletins or circulars as need arises.

Among other notable beekeepers present were Prof. Francis Jager, C. P. Dadant, Dr. Leonard, Dr. E. F. Phillips, Herman Rauchfuss, E. G. Brown, Miss Fowls, John C. Bull, D. C. Polhemus, and Hamlin Miller. There were threescore other equally earnest beemen there. Prof. Jager in his address dwelt on the necessity for a new life and larger field for the National. Dr. Phillips told of the Government's work, especially in extension activity. "Ham" Miller told of how his "bee pep" was building the Iowa association. Dr. S. A. Jones, of the Bureau of Crop Statistics, told of his plans for securing honey-crop reports and circulating these reports among the beekeepers to their very great advantage. The banquet held at Park Hotel, Wednesday noon, was a decided success, 62 being present. It was full of good cheer, and helped to promote the most cordial spirit of fellowship among all present.

One drawback to the convention was the crowded condition of the hotels, due to the usual activities of a state capital during a legislative session.

The whole meeting was marked by great enthusiasm and the expressed determination of all to make a better future for American beekeepers.

Mother Bee NURSERY RHYMES

By M.G.P. (Mother Goose Plagiarized.)



Old Nursebee Hubbard
 She went to the cupboard
 To get her poor brood some bread
 But when she got there
 The cupboard was bare,
 And so the larvae are dead!

Mistress Mary
 quite bee-wary,
 How does your beeyard grow,
 With smoker and veil,
 and honey for sale,
 And pretty hives
 all in a row.



HEADS OF GRAIN FROM DIFFERENT FIELDS

War in the Spring

BY GRACE ALLEN.

('By spring we too may be at war.'—Press
Dispatches.)

With gay young songs on her ancient lyre
The garlanded spring will come.
For the lure of a flower and a sun of fire
The bees will quiver and hum.
But my heart, for all its dream and desire,
Is cold today and dumb.

There are voices across the dew-sweet land
Like summoning bugles of old.
My quick breath stops, and a sudden hand
Against my heart I hold.
For hearts that hear and understand
Are dumb today and cold.

At war in the spring? When wild bees wing
Thru murmurous orchard and lane?
Tho men that have died, great dreams to
bring,
Have never died yet in vain,
Yet the pity of death when robins sing
In the hush of a warm spring rain!



Operating
Diseased Bees
on Shares

I have sold my bees in
Colorado, and will lo-
cate here next spring
and commence to build
up a yard. I shall have extra time, and am
desirous of leasing a yard. The owner has
about 60 colonies. He runs for extracted,
and has discovered that he has foul brood,
and knows next to nothing about its control.
What share of the crop would I be justified
in asking on a one or two years' lease, pro-
viding I do my best to clean up the yard?

Herbert W. Gaines.

Redington, Neb., Dec. 19.

[The usual rule where bees are kept on shares is for one party to furnish all the labor and the other to furnish the bees, hives, and equipment; but the expense of all shipping-cases, sections, comb foundation, bottles, and tin cans is to be shared equally by both parties. All increase is to be kept down, and the operator is to double up the colonies and put them in as fine condition as possible for winter. In the case you mention, if the owner has foul brood the operator should receive at least 60 per cent of the honey and possibly 75, because there will be some extra work, and the crop will be cut down somewhat by reason of the disease. We would say in this case that it would be fair for the owner to receive only 25 per cent of the crop while the operator would receive 75 per cent. The expense for special supplies should be borne in about the same proportion, owner paying 25 per cent and the operator 75.—Ed.]

Some of the Ways
in Which We Have
Used Honey *

We find many ways
in which honey im-
proves food. A table-
spoonful of honey in

the muffins for breakfast decidedly im-
proves them and causes them to take a
beautiful brown, and it gives bread a
moisture that improves its keeping quali-
ties. A dessertspoonful of honey in any
cake recipe improves the cake and keeps
it moist much longer. A small amount of
honey vinegar and a little soda will im-
prove the cake or muffins where baking
powder is used, and less of the latter is
needed. The soda should be dissolved in
water, then poured into the honey and
vinegar, stirred into the thin batter while
effervescent, and then the rest of the flour
added. The cake will rise in a surprising
manner. If the housekeeper will use a little
honey in cakes it will prevent its falling.

The honey cereal coffee given in Gleanings
is splendid. We use it the year thru with a
small amount of the best coffee added, and
we like the combination very much. This
recipe should be modified, however, by
leaving out the egg. There is no value or
flavor in browned albumen.

Honey is cheaper than sugar, and now
is the time to introduce it. It costs money
to get this information before the people,
and this can best be done by associations.
I would suggest that they do this by
placing recipes for the use of honey where
people will see them, talking the matter
over with friends, neighbors, and those
we meet, and then placing the honey where
it is readily reached. If this is done as it
should be the demand for honey will be so
increased that there will soon be a ready
market for all the honey produced.

Caldwell, Idaho.

W. L. Porter.



What Controls the
Time and Degree
of Granulation?

On page 45 of the
January issue Dr.
Miller questions P. C.
Chadwick's state-

ment to the effect that the riper the honey
the less it will granulate. The editor adds
that it is generally believed unripe honey
will granulate quicker than ripe honey. To
my mind this does not answer the question.
It seems to me these are two distinctly
different propositions.

It is an admitted fact that some honeys
do not granulate. I have some unfilled
sections partly capped over, left from early
last season, which have not yet granulated,
and I had some goldenrod honey that
granulated within a very few days after
it was extracted, and this was thoroly

* Condensed from a paper prepared by Mr. Porter
for the last meeting of the Colorado Honey-producers'
Association.

HEADS OF GRAIN

FROM

DIFFERENT FIELDS

ripe (fully capped over) when extracted. This honey when liquefied has a sparkling amber color, and is so thick it will hardly run at all. When we want to eat it we take a spoon and "wind up" what we want. In the granulated condition it looks like good butter, only it is a little more solid.

We have honey here that does not granulate. It comes from a rather small tree called the sourwood. I have never known it to granulate. There is a reason. Who can tell whether this honey has something in it to keep it from granulating or whether there is nothing in it that will granulate?

New Richmond, Ohio. Houston Scott.

[Technically speaking, Mr. Chadwick's proposition and our own are different, and yet the same condition that permits slight granulation also causes the granulation to take place but slowly.

Briefly speaking, honey is a complex substance. The amount of dextrose determines the degree or rapidity of granulation. Honeys containing high percentages of levulose or dextrin, which are non-granulating, granulate slowly or not at all, depending upon the amounts present. If honey were composed of dextrose entirely it would become perfectly solid and dry. The substance that might be obtained by evaporating the moisture in honey would not be honey, and probably could not be sold as such. Certain honeys, like the sage of California and tupelo of Florida, containing a high percentage of levulose, do not granulate, because the influence of the levulose is stronger than that of the dextrose.

Of course agitation and alternate high and low temperatures hasten granulation. Other things being equal, honey that is extracted, because of the agitation and the introduction of bubbles of air, will granulate more quickly than honey which is not extracted.—Ed.]

Plenty of Drones
as Well as Brood
in November

Early in the fall of
1916 I purchased a
golden Italian queen
from J. B. Brockwell,

Barnetts, Va., and introduced it to a colony of blacks after destroying the old queen. She commenced laying in due time, and kept it up at a rapid rate until about the middle of November. In the mean time there was no honey to be had from any source. About November 15 it turned very cold—almost zero weather; in a few days the weather began to moderate, so the bees were seen flying from some of the hives, and I noticed a large pile of dead brood in front of this hive—drones

and workers in all stages, some about ready to hatch out. The brood became chilled and the bees dragged them out.

Is this a common occurrence when goldens are purchased from the South and shipped North? I have other queens—the three banded from the South, and they all stopped laying early in October, when there was no honey from the field, and the weather began to get cold; but this queen kept right along laying. It is a strong colony now, but I am afraid they will run short of stores. The hive was not very heavy when they were put into winter quarters.

Romeo, Mich.

C. C. Chamberlin.

City Beekeepers
in California and
a Lot of Them

I live at the outskirts
of the city, altho it
is built up close all
around us. All the

lots are 25 x 100 feet, and there are very few empty ones. In the five or six blocks nearest to me I venture to say there are at least 20 to 25 colonies of bees per block.

About half a mile away to the eastward there is a large forest of eucalyptus-trees, also some sandy hills where more or less sage is to be found as well as lupin and numerous wild flowers. There are also a good many acacia-trees growing which bloom heavily in the season. The eucalyptus blooms steadily from March 1 to June 15. We get our surplus from this source.

I have two colonies, one Italian and one black. On Jan. 31, last year, I fed both colonies sugar syrup for three weeks and they built up wonderfully, as they were quite weak after the winter. The hives were just boiling over with bees at the right age to go to the fields by the time the eucalyptus began to bloom well. From the two colonies I secured 250 sections of fine light-amber honey, also sixty small individual sections, four of which take the place of one 4 x 5 section. I sold all the honey at 20 cts. per section among my friends and acquaintances.

About the middle of June, having just returned from a trip out of town I found that one colony during my absence had swarmed. It was then late in the evening, and I wanted to find out which hive the swarm had come from. I put on my veil and gloves and started to investigate. As it was late and cool, and a fog coming on, the bees did not fly much but just crawled around all over my legs, under my coat, and into my veil. I had neglected putting the veil under my vest. In a very few seconds I had my veil full of bees which were stinging to beat the band. I rushed for the bathtub and dived

HEADS OF GRAIN FROM DIFFERENT FIELDS

in, thus drowning the bees. Next day I counted over 500, and there were more. Altho badly stung, my enthusiasm was not dampened, and I am not in the least afraid. I hope to be able to repeat my successful honey crop next year. Scott A. Ray.

San Francisco, Cal.

which of the two samples had been heated. The same is true today, except that a close inspection of the unheated sample shows very minute granules, the commencement of granulation, while the heated sample is as clear as at the first.

Westville, Ind., Dec. 1. E. S. Smith.

Nine Hours at 130 Degrees Didn't Hurt the Honey

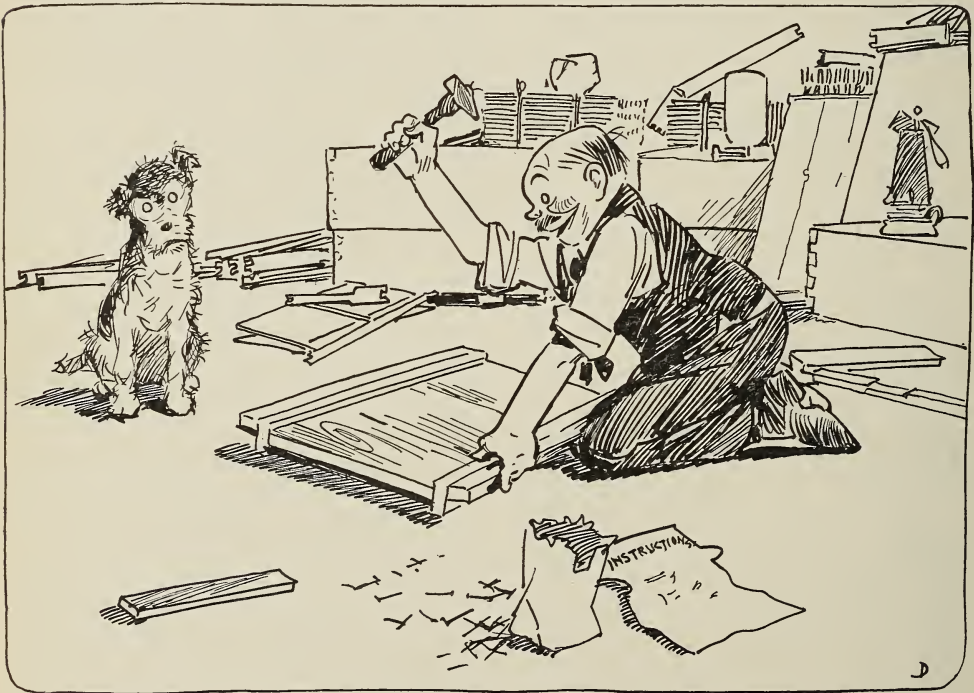
I was surprised to read on page 1088, Nov. 15, that honey heated to 130 degrees and kept at that temperature four or five hours would be darkened in color. Having seen repeated recommendations to use a lower degree of heat than 160 degrees, about midsummer I divided a sample of new, light-colored honey in two portions, one of which in a bottle set in a dish of water over an oil-stove by which the heat could be nicely regulated I kept at a temperature of 130 to 133 degrees Fahr. for nine hours. When cold, neither I nor others to whom the two samples were submitted could tell by taste or sight

Brood-rearing
May Cause a
Shortage of Stores

I have 330 colonies of bees in ten-frame Langstroth hives located in and around Colquitt on one of the tributaries of the Apalachicola River. I produce extracted honey exclusively. This has been an unusually warm winter. I have seen men around town in their shirt sleeves today, Jan. 10. I was out at one of my yards today, and noticed young bees taking their first flight. I examined the comb, and found brood-rearing progressing rapidly. I noticed bees bringing in pollen some days ago, but am unable to locate its source.

I feed my milch cows cotton-seed meal, and have a considerable amount on hand

Continued on page 226



THE BACKLOT BUZZER.

BY J. H. DONAHEY

Billy Appleblossom was over and says his grandpa is patiently watching at the sitting room window these days. Just as soon as the bees come out for a frolic he says he's going to venture outside.

THIS is Christmas day; and may God bless the message I feel he has given me to send to you. Most of you have read more or less about my Eglantine chickens. Well, when that pullet commenced to lay when she was only

four months and eight days old it occurred to me that she and her sister pullets would be of interest at our Medina Co. fair; and it occurred to me further that the good people down in Florida would also like to see them at our Manatee Co. fair; and to exhibit them in good style I planned to have our hive-factory make a nice cage for the exhibits, and to use this same cage to ship the whole by express when we were ready to go to our southern home. Later on, as you may recall, this same "youthful mother" came off with a bright family of chicks, and, therefore, this fine cage nicely painted (inside and out) was divided off so as to have three compartments—one for the fine rooster (tall enough so he could stand upright with his seven pullets), and right alongside a two-story compartment. The upper part was for some half-grown chicks, and the lower one for the precious pullet and her brood. You see I set every egg laid by the Eglantine, and the result was I had in the cage to be expressed 21, big and little. They were started Tuesday, Nov. 14; but altho I was on hand at every arrival of the train, "no chicks" up to Saturday. I had planned to go up Saturday evening; but as a colored drayman promised to be on hand *sure*, even if the train was late (if they came he was to bring them down at once to our place), I trusted to him. As I saw nothing of him, I concluded none came; but what was my surprise to see him, about 9 o'clock Sunday morning, dump my precious cage down on the porch in a most dilapidated condition, *upside down*!

I had provided an ample supply of different kinds of grain, and on a card asked express agents to keep water in the three water-dishes; but if you had seen the seventeen remaining chickens *drink* you would have decided they hadn't had a "drink" for almost a week. They kept



Thou shalt love * * * thy neighbor as thyself. — LUKE 10:27.
And who is my neighbor? — LUKE 10:29.
Look not every man on his own things, but every man also on the things of others. — PHIL. 2:4.

drinking almost the whole forenoon. All finally "fetched up" but one. The agent gave me a statement saying the cage came to him in bad condition, so there seemed nothing to do but to make a bill to the company for the loss of four half-grown

chicks and smashing up my fancy cage, made on purpose for an exhibit at our coming fair. The extra cockerel sent down some time before, I valued at \$10.00. I paid \$5.00 express charge in *advance* in order to have the whole rig handled carefully, and we bolted some iron handles on each end of the cage so it could be readily lifted carefully, even by one man. One end of the cage was mashed "all to splinters," and had been "cobbed up" and tied up with ropes, etc., on the way. Of course the company should pay for their careless work, I argued, and so would almost anybody else; but let us pause a little. On page 212, March 1, I spoke of Trumbull's tract, "The Victorious Life," and quoted as follows:

"The life that is Christ reveals to a man a score of sins and failures in himself where he saw only *one* before."

I said there, on Feb. 3, that I had made a little start on "The Life that Wins." Well, I have been trying to hold to it now for almost a year. When I considered making out a bill for damages against the express company, conscience began making a protest. "What would *Jesus* do" were they his chickens? *He* said, "Thou shalt love thy neighbor as thyself." Are the express companies my neighbors? Think of it, friends. Have we been treating them as "neighbors"? My good friends of the *Rural New-Yorker* have been showing them up (*perhaps* as they deserve); but is there not something to be said on *their* side as well as on ours? We all know that the way to have good neighbors is to be neighborly ourselves. After summing up how they have damaged me, suppose I go over the ground *again* and try honestly to see how much I have been to blame. All right, here goes.

No. 1. First, I told our workmen at the factory to make the "cage" as light as possible so as to save express charges. I

have just measured a splinter from the broken end. It is only $\frac{1}{8}$ inch thick for a shipment of over a thousand miles.

2. I was not on hand when the chicks came, because I was "too tired." Who knows but that the colored man, by his awkwardness, let the two live ones get away? When he dropped it upside down on the porch, two got out and we had to chase them.

3. I now recall that I put two older chicks in with the hen and chickens; and Mrs. Root said before they started, "That hen will surely kill the two that do not belong to her." But I replied, "Oh! she will let up after a little." Were not the two dead ones found in the cage these two? They were about the size of them.

4. In watching shipments of chickens in the large cities as we came thru, I noticed all crates were strongly made, and low and flat, not permitting the fowls to stand upright. On this account the handlers of "coops," in the hurry, forgot to notice that *my* crate was to stand upright, and turned it over on its back like the rest, spilling the food, water, etc. Was I not at least somewhat at fault in not conforming to custom?

5. Was I not further at fault in putting 21 chickens, of three different ages, all in one crate instead of having three small crates for so long a shipment?

I might go on, friends, still further. This incident illustrates how the shipper, if he wishes to be fair and "neighborly," can view both sides of the question when it comes to discussing "damages" while the company has to guess at what I have owned up in the above.*

Somebody has said, "Corporations have no soul." Is it not largely *your* fault and *mine* that it is so? Have you not noticed the growing fashion of suing for damages? I am told that there are a lot of so-called lawyers who make it their business to go to people who have suffered, and offer to "sue" for half the proceeds if successful. Is it not true that if we, as a people, loved our neighbors as ourselves, even "just a little bit," the wicked war over the seas would never have been started? And would it not be still *more* true if we only recognized every poor soul *in trouble*, no matter

* Some years ago a lot of bees sent by express were "smashed up." I sent in a bill for thirty or forty dollars' damages. An agent of the company came to see us, and in a very friendly way said something like this: "Mr. Root, we will pay this bill if you say so; in fact, I suppose we shall have to pay it; but if we do we shall be obliged to raise our rate on bees. Shall I pay the bill?" I think that in this case there was fault in preparing the shipment. I said, "No;" and the rate on hives of bees was not advanced.

on which side of the world he lives, as "*our* neighbor"? I think I can see this "cruel war" is in some way helping to bring the above to pass.

"Oh glorious victory" that is coming, coming, *coming*, when we shall be neighbors to *everybody*, and everybody neighbors to us—the victory that overcometh the world!

TRUE AND FALSE PATRIOTISM, FROM A COUPLE OF "MOTHERS IN ISRAEL."

Mr. A. I. Root:—Quite recently mother sent me a clipping taken from GLEANINGS. It was an article in regard to patriotism, which I heartily endorse. I have for years viewed national patriotism as a sort of fanaticism, a breeder of mischief. It is a form of self-exaltation and misappreciation of others. It must come to pass according to Isaiah 9: 6, 7, that "the government shall be upon his (Christ's) shoulders;" his is the only flag or banner that can unite humanity. He is the one great magnet or force that can "draw all men" without causing friction of the units. When the angels proclaimed the fact of his birth, his mission on earth was heralded thus: "Peace on earth, good will to men."

I think the root of the trouble is too much *theoretical* and not enough *practical* Christianity. Faith without works is dead. We practice too much selfish and not enough *unselfish* patriotism. Patriotism, from "*patria*," Latin for fatherland, ought to mean zeal and patriotism for the *heavenly Father's* kingdom to be established on earth. Formerly there were family, tribal, and state differences and feuds. We have reached the stage where these have found means of living in peace and harmony, having laid aside each his own emblem and united under *brotherly* love. It is now time that the *nations* unite under the banner seen by Solomon, and which will lead to the "banqueting house" of nations—Song of Songs, 2:4. "He brought me into the banqueting house, and his banner over me was love." MRS. LOUISE LACY.

Richmond, Mo., Nov. 6.

Mr. A. I. Root:—To the above letter I will add that both of my parents were French, and that I love France where I had a very happy childhood. My good husband was a *German*. I have been in Germany five times, and love Germany dearly. Our children were all born in *Belgium*, except the youngest. He was born in the United States. By such conditions, how can a body feel patriotic, especially if homesick for the "old country"? Of course we all must be true toward our adopted country.

With such a mixture of people from everywhere under the sun, many having come here to escape militarism, I doubt very much whether it is right for us to export any implements of war. May the time soon be here when the women will all have the right to vote, and that they will use it so that the exportation of arms, whisky, and cigarettes from this country will be a thing of the past. How can we pray in truth for God's kingdom to come, and at the same time furnish the world with implements of murder for body and soul? God's kingdom will not come so long as this nation tries to serve God and *mammon*.

MRS. N. H. SORGE AND FAMILY.

Ringwood, Okla., Nov. 23.

Amen to both of the above letters; and may the time speedily come when women

like the two above may have a chance to vote, and not only stop the exportation of whisky and cigarettes but also of *all* munitions that are made only to *kill people*, and that can be used for no other purpose. That family of three nationalities is typical of a large part of our United States, and is a most vivid illustration of the fact that *we cannot engage in war*.

“THE BOLD INTRUDER.”

Together with a kind letter from C. C. Crowston, Troutdale, Ore., comes a tract from which I clip as below:

THE EMPIRE BUILDER.

“The Empire Builder,” such is the eloquent and descriptive title given to J. J. Hill, the king of railroad magnates. But he is *gone*! His accumulated wealth of \$250,000,000 could not buy off the “king of terrors.” Nor could his fame and notoriety abash the bold intruder. His death-chamber called together skilled and celebrated physicians, but they could not cope with the antagonist of life, nor wrest their patient from the tyrant’s grasp.

As a poor boy he started out in life’s fair morning. When he soared high in the sky of financial success he was envied, counted wise, shrewd, and far-seeing by those who estimate a man according to what he

amasses. He passed on of time—hoary with age, burdened with the weight of years, and enriched with vast and varied experience; but the place that knew him once shall know him no more forever. If his absence is eternal here, his presence over there is for ever.

Man’s existence does not end with time, neither does it end with eternity. Here he appears, then disappears; there he appears, but never disappears.

Reader, how is it with you? Are you so engrossed with the many affairs of time that you are giving no thought to the overwhelming and weighty matters of eternity? If so, you are a thousand times more foolish than the poor Indian that traded off a fortune in nuggets of gold for a few brass buttons.

C. C. CROWSTON.

FRIEND SHUMARD GONE TO REST.

About ten years ago, when on the island opposite Osprey, I had considerable to say about Mr. Shumard, who then owned a large part of the island. We have the sad news that he died Nov. 2, age 74. We quote as follows from the *Sarasota Times*:

“The high regard in which he was held was evidenced by the great number of those who gathered at the Baptist church at Osprey, where the last loving rites were held, and where he was laid at rest ‘Till Jesus comes.’ He did not die. He just quietly fell asleep.”



HIGH - PRESSURE GARDENING

HIGH-PRESSURE GARDENING WITH IRISH POTATOES.

The plan given on p. 145, February issue, promises at this date, Feb. 10, even more than I hoped. If you have no hot-bed, cold-frame, or greenhouse, find a sheltered spot where the sun strikes as many hours of the day as possible, and where north and west winds are kept off. Work the soil up fine and then make it exceedingly rich with stable manure, poultry droppings, or commercial fertilizer. Potatoes will stand heavy fertilizing. Level it off and spread your potatoes out one deep, not quite touching each other, say $\frac{1}{2}$ inch or more between them. Cover with this same rich fine soil. Now let the sun warm it up as much as possible; but before the sun is shut off, cover the whole bed with burlap sacks, old blankets, or something similar, so as to hold in the heat the sun gave it during the day. Be sure your blankets are off when it rains; and if it does not rain, water when needed. You should manage so as to have green leaves and good strong roots by the time the potatoes can be cut and put out in the field. I am *hoeing* my potatoes today that were set out two days ago. We had a warm rain just after setting them out. By this plan

you can get good strong plants from even small potatoes; and potatoes that are decayed or partly decayed at one end, will often give the very best plants. The new shoots on some of them, because of our very rich soil on the cold-frame, looked more like asparagus-shoots than like potatoes, and, in fact, some were about as large around as asparagus-shoots. Such potato-plants of an early variety will give new potatoes for market, with favorable weather, in four or five weeks. We are now digging, and selling every day, in half-peck baskets, at 40 cts. a basket (\$3.20 per bushel), or about the price of Bermuda potatoes. This short cut for new potatoes should bring the United States a *million dollars*, especially while the price is away up, if those who like such work would *get right at it*. Where are the boys and girls of the potato clubs right in this crisis? This work should all be done while the ground is being made ready to plant.

KIND WORD FROM A 30-YEAR SUBSCRIBER.

I have taken your magazine most of the time for 30 years, and want to take it as long as I live if Uncle Amos and GLEANINGS outlive me.

Ozark, Mo., Sep. 6.

S. S. LAWING.

HEALTH NOTES

POISON IVY—IS IT WORSE THAN BEE-STINGS?

Some little time ago the young man who married my oldest granddaughter, Mr. Marshall F. Bryant (I suppose I shall have to call him my grandson-in-law), while at our cottage on the shore of Lake Erie was severely poisoned with poison ivy. Of course there was the usual talk about remedies; but after the trouble had continued several days he concluded it would *not* get well of itself, as I had suggested, like bee-stings. So he went to our druggist, who gave him a prescription that killed the virus at once. Here is the prescription the druggist filled:

POISON-IVY REMEDY.

Zinc sulphate, 15 grains; distilled water, 1 oz. Soak cloth in the solution and apply to the poison blisters. Alternate with alcohol if not relieved. Use with care, as it is a deadly poison.

Since then the two following letters have come to hand in regard to the same matter:

I notice some reference to poison ivy on page 214; and as I have had some experience with it I am giving the remedy which I have found to be most successful. Simply moisten the affected parts with a 1-1000 to a 1-5000 mercuric chloride solution. As this is very poisonous if taken internally, it should be handled with care. I have not found the stronger solution to be hurtful to the skin. Renew the application several times a day.

LEONIDAS R. LITTLETON.

Professor of Chemistry, Emory and Henry College.

Dear Mr. Root:—I dearly love GLEANINGS, and especially your department. I have been taking it for 26 years, and I have not missed a copy. When I see you classing poison ivy as no worse than bee-stings I am tempted to write you my experience and observation, extending over a period of 50 years. I have had my share of stings, and poison ivy too, and I know whereof I speak. If I had to take either, and had my choice, I would say bring on the bees. Some people are affected by ivy a great deal more than others. I don't dare go near it when I am hot and perspiring; yet my son can handle it any time, and he has never been poisoned by it. I knew a lady (one of my mother's sisters) who was near to be delivered of a child. She was poisoned by ivy. She failed to get it cured, and it went all thru her system. When her child was born its body was broken out all over like its mother. The doctor said it was the ivy poison that its mother had. It was not cured, and lived only a short time. Bee-stings will get well without anything being applied; but poison ivy, *never*. O. M. Cutts, page 755, Aug. 15, has discovered that salty meat grease will kill it. Tell him to try the salt without the grease, or salt and water, and it will be just as effective. The best remedy I have ever tried an old doctor gave me. Go to the drugstore and get some sugar of lead, put it in just enough water to dissolve it, and apply it to the poison with a rag about three times, and that is the end of the poison.

W. MILTON MOORE.

Visalia, Cal., Sept. 1.

With the above evidence I think I shall have to conclude that p ison ivy does not

get well of itself like bee-stings. Now, even tho I may be wrong, I am going to make another suggestion. From what I am told above, I am inclined to think the poison of redbugs, that so much has been said about, would yield to any or all of the above remedies. If the remedy is applied shortly after the insect has punctured the skin, the strong medicine would kill it. If after the insect has burrowed beneath the skin, and the spot is swollen, give it a good scratching and then apply the medicine. Last winter I used a strong solution of sal-soda with very good results. Sugar of lead has long been known as an antidote for poisonous plants or insects.

The letter from our good friend Moore reminds us not only to be careful about coming in contact with poison ivy, but also the importance of going to a doctor or druggist for a remedy as soon as possible. The whole wide world is just discovering how an unborn child may suffer from alcoholic poison taken by the parents; and the incident before us shows what may follow in like manner from the effects of poison ivy.

HELPS FOR DEAF PEOPLE.

In addition to what I said on p. 1190, Dec. 1, I wish to add that the Globe Audiphone Co., Reading, Mass., have just got out a beautiful little instrument called the "Audi Aid." When I first put it against my ear I uttered a shout because of the loud ticking of the clock and a lot of other sounds I had not heard for years. I said to Sue, "Why, this thing is going to be worth a hundred dollars!" But when carefully tested with the human voice I was compelled *again* to admit I could hear and *understand* no better than with my hand held over my ear, and perhaps not quite as well. At present I cannot understand this, and I hope it may do better with other deaf people.

"GOD'S KINGDOM COMING"

PUTTING ITS FOOT DOWN ON DOPE CURES.

After years of litigation, the United States Supreme Court has at last decided that the traffic in dope medicines and cure-alls is illegal, and must hereafter be excluded from the mails and barred from interstate commerce. Under this ruling, the Shirley amendment to the Pure Food and Drugs Act becomes operative, shutting out the whole fraternity of quacks who for many years have been growing rich at the expense of the credulous and the simple. These conscienceless swindlers and their worthless cures have been so often exposed that the only remarkable thing about the case is that

they were not suppressed and stamped out of existence long ago. They have numbered their victims by the million, and the foolish faith reposed in their nostrums by both real and imaginary invalids has cost many lives that might have been saved by proper treatment, to say nothing of the multitudes who have become slaves to drugs and alcohol. The *Christian Herald* has always been in active sympathy with the movement to suppress these fakirs, regarding their traffic as immoral, unscientific, and wholly fraudulent. If they can now be excluded, not

only from the mails but from the columns of the country newspapers, their source of revenue will be cut off and they will soon disappear—a riddance upon which the country is to be congratulated.

A hearty amen to the above, taken from the *Christian Herald*, especially if it includes all advertisements that try to make out that booze is ever, under any circumstances, a *medicine*.



POULTRY NEWS

THE EGLANTINE CHICKS.

I have told you about the chicks I raised in Ohio, about the getting of them down here, etc. Well, if this strain of Leghorns are going to lay in 4 or 5 months, I figured that if I could save up enough eggs to start an incubator, say in November, I could then have pullets laying (at least to some extent) before we start back north, say about May 1st. Therefore I saved up 6 dozen eggs, packed them in a valise in bran, and carried them with me on the train, and managed to avoid breaking a single egg. Now let us go back a little. About the time I began saving up these eggs, friend Abbott wrote me a man wanted to buy my small Buckeye incubator. Mr. Abbott has been using it for a year or two and altho he has two or more machines that cost a lot more money, if I am right, the greater part of his thousand or more chickens were hatched in the little Buckeye. His remarkable success with it is why the man wanted to buy it. On p. 1042, Nov. 1st issue, I told you of my visit to Springfield. Well, while there I visited the Buckeye factory. I was not only astonished at the volume of their business but also as well at the wonderfully fine workmanship of their work in wood and metals. I got hold of a lot of points on hatching eggs that were new to me, and I ordered sent to Florida one of their latest small incubators, and a brooder stove to match. Here is one point: Their smallest and cheapest machine will do just as good work, and hold as many eggs, as a much higher-priced one. Some people prefer to pay *more* for style, ornaments, etc., but I don't. Their cheapest machine is handsome enough for me.

Well, when we started for Florida my 6 dozen eggs were some of them about a month old; they were all from pullets only 6 or 7 months old, and they had to stand a shipment of about 1500 miles. Altho the new machine worked beautifully, only 27 of the 72 eggs proved fertile, and of these 27 we

got only 18 chicks. Two of the 18 had to be helped out of the shell, and *one* came from an egg that was not even pipped. I made a small opening near his bill (on the Philo plan), let him breathe about 24 hours and then helped him clear out, and now when the flock is over 3 weeks old I can't tell the ones I helped out of the shell from the others.

Well, it wouldn't pay to start the brooder *stove* for only 18 chicks. This is what I did. I found a rock where the men had been blasting, about as big as I could carry. It would just go into the kitchen stove oven. During the cold days in November it cost nothing to get this stone hot. When it would almost burn the paper I tied it upon heavy paper, then outside of that wrapped it with clean empty grain-sacks. A barrel was laid on its side, some sticks put across, and the wrapped-up stone laid on the sticks. It kept hot 48 hours, when we had our coldest weather. One or two nights I put more sacks over the outside of the barrel, and spread oilcloth over all when it rained. Why does anybody want a better brooder for, say, 2 or 3 dozen chickens? They spread out on some soft straw under that hot stone, and when too warm they came out in front. A barrel-hoop covered with poultry-netting kept out prowlers nights. The hot stone was needed only about a week or 10 days; after that, only some blankets over the cross-sticks. Before they ever saw a mother hen they could scratch, fly, and run like a flock of quails. They have now, at a little over 3 weeks old, the run of the garden, and they follow Wesley in his spading under the matted vines of velvet beans, from daylight till dark. Sometimes it is crickets they get, but oftener grubs, cut-worms, and other pests; and not a spadeful is turned over and pulverized without careful inspection from 18 pairs of wonderfully keen little eyes. Who knows how much this has to do with our beautiful thrifty garden just now?

TEMPERANCE

"THE END OF IT IS IN SIGHT."

Even the liquor men now seem ready to admit that prohibition is gaining ground, and is likely to win 90 per cent of the country within a few years. Mr. Bryan now regards it as the greatest social question, and urges his party to take up the issue seriously. The fact is that the liquor traffic has no economic right to exist in this country. It serves no useful nor respectable purpose, and represents a dead loss which society cannot afford to suffer. The breweries and distilleries can be used for making industrial alcohol, and thus give employment to the men who are now worse than uselessly employed in making liquor. Every moral and economic argument is against the liquor traffic. It has no place in a country or in a world in which poverty exists and where men, women, or children lack food and shelter. Farmers are injured by this traffic more than any other class. They realize it, and that is why the great strength of the movement against "booze" comes from the country. The business of selling liquor is no longer respectable, and the end of it is in sight.—*Rural New-Yorker*.

I clip the following from the *Coshocton Tribune*:

LET THE PEOPLE DECIDE.

This nation is fast learning that it can do without the manufacture, sale, and consumption of booze. Last Tuesday's election, besides performing a number of other eye-opening stunts, marked the greatest advance of temperance sentiment of any previous national election in the country's history.

The record of 1916 is almost unbelievable. On January 1, 1916, less than eleven months ago, there were only nine states in the Union under prohibition rule. Today, so swiftly have events moved, there are twenty-three actually dry states, and every reasonable prospect that two more will be dry just as soon as the newly elected dry legislatures get down to work.

Territorially, eighty-five per cent of this country is now dry. Sixty-seven per cent, or two-thirds of its population, lives in dry territory. The truth is that nine-tenths of the dispensing of beverage intoxicants in this country is confined to a dozen or fifteen big cities. Only three states—New York, Pennsylvania, and New Jersey, are still completely under the domination of the liquor interests. Ohio and Illinois are still rated by these interests as of their own, but this is true only of the big cities.

Rural America is already dry; but the big cities like New York and Philadelphia, with truly urban provincialism, simplicity, and ignorance, don't know it. Not only is rural America dry, but there is a tremendous change coming over the big cities themselves. Their own people are fast coming to see that the liquor business, considered sanely and from every angle, is not an asset, but an ominous and a menacing liability.

Reasoning from this and from every phase of the situation, the time is assuredly ripe to submit the question to the people nationally.

A CONFISCATION OF \$9000 WORTH OF WHISKY

Some unknown friend sends us a newspaper clipping from an unknown source. It reads as follows:

TACOMA, Sept. 26.—A carload of perfectly good bonded whisky is in storage here following its seizure by deputy prosecuting attorneys and county detectives at Wilkeson, a coal-mining town.

The value of the contraband intoxicant is estimated at \$9000, and was consigned by a San Francisco liquor firm to George Morris, a Wilkeson expressman, who, however, denies all knowledge of it.

The whisky was billed as "grapes," and to carry out the deception a layer of grapes about six inches deep was placed on top of each case of liquor.

When word of the seizure spread thru Wilkeson women and children armed with buckets and dishpans flocked to the booze-car, where the officers liberally distributed the luscious fruit free.

In case no claimant appears the authorities will confiscate the liquor and give it to the fishes in the Puyallup River.

What do you think of a business, friends, that has to be conducted in that way? Is it not a fair sample of the entire liquor traffic from beginning to end?

IN PLACE OF "BOOZE," CHILDREN'S SHOES.

Read, and ponder on the above from the *American Issue*, especially that part in regard to children's shoes.

Out in Seattle, Wash., is a shoe concern called the Dinham-Strehlau Shoe Company. H. T. Dinham is president. Since the city is dry, this shoe company has for its motto, "Less booze means more shoes." In a recent letter concerning the company's business since the prohibition law went into effect, President Dinham says:

"We have opened three new shoe-stores in Seattle since the dry law went into effect the first of last January. All of them are in locations formerly occupied wholly or in part by five saloons. We are employing more men than the saloon did, and are doing a flourishing business. The increase in the sale of shoes in Seattle has been remarkable since prohibition went into effect in the state. There are 50 per cent more children's shoes sold now than there were when the saloons were in full blast. The people are also buying a better quality of shoes than formerly."

Will the *Liberal Advocate* please copy?

INSANITY; HOW DOES IT COME AND WHAT CAN BE DONE TO PREVENT IT?

The clipping below, sent us by some friend who gives us no clue as to where it comes from, contains a startling truth: The suggestion in the first paragraph, that killing off our best men, leaving the poorest to replenish the earth, is a reasonable explanation of the increase in insanity. With the abolition of the *saloon* there will be, unquestionably, a decrease in *syphilis*.

War is the greatest factor of insanity. The Civil War wiped out 720,000 of the best American stock—healthy, strong, courageous, clean, manly men—young men who were the pick of the country, Northerners and Southerners. This loss was plainly shown in heredity. In 1870 the number of insane persons in the country had increased by nearly one-fourth, and the number of idiotic persons had increased by one-third of the previous proportion in the whole number of people.

Alcoholism is the second greatest factor in insanity, epilepsy, feeble-mindedness, and degeneracy

in the race. Alcohol impairs the seed of the race. It costs us millions of dollars to support the defectives produced by alcohol, yet we license and protect the sale of this most potent poison.

Syphilis is the third great factor of mental and physical degeneracy in the offspring. Yet we permit prostitution to exist under semi-official or clandestine regulation. At least four out of every five prostitutes are actually feeble-minded—defectives. Their chief function is the spreading of disease. Victims of these diseases have physically or mentally defective offspring if any—and so the social evil is perpetuated. The social evil would die out in a short time but for the indispensable help of alcohol. Alcohol is the key to the situation. We have the privilege of voting for or against race degeneracy.

We know and can demonstrate that half of all insanity is due to alcoholism and syphilis, either in the individual himself or his ancestors.

IDIOTS AND IMBECILES—THE CAUSE.

The following startling story we clip from the *American Issue*. It is rather long, I know; but the importance of directing the attention of the whole wide world to the facts given is, I am sure, a sufficient reason for giving the whole thing. After you read it over once, read it over again, and ponder on it and pray over it. How long, O Lord, shall we continue to burden the world with helpless and idiotic offspring?

Some years ago, at the Vienna Anti-Alcohol Congress, Bezzola, a noted scientist, gave it as his opinion that an occasional intoxication causes injury to the germ cells to which many cases of defective offspring could be attributed.

Later, other eminent scientists in Europe proved by numerous demonstrations that Bezzola was right. In fact, these scientists have removed all doubt. The world of medical science now recognizes this great truth.

Last December at the meeting of the American Society for the Study of Alcohol and other Narcotics, Dr. Matthew Woods, of Philadelphia, told of eight cases in a list of 182 epileptics investigated in which he had been able to trace the history of their existence back to a single alcoholic intoxication in parents otherwise abstainers.

But we do not need to go to Europe, nor even to the eastern half of our own country for evidence. It is right here in Ohio. Mr. J. M. Hanson, secretary of the Charity Organization Society of Youngstown, gives the following remarkable instance of the result of his investigation of a family in that city.

"In April, 1908, an Italian residing at 2638 Shannon Street came to us asking that we place his three defective children in an institution. I visited his home and found three hopeless idiots aged 6, 3, and 1½ years respectively. There was no sign of any degree of intelligence in either of them. They all took nourishment in the form of milk from bottles. Not having intelligence enough to use their limbs, they had not developed, and so all were helpless.

"I found in the course of my inquiry that there were four older children who were normal, viz., girls aged 16, 14, and 8, and a boy 10 years old. These children were, with the exception of the oldest, who helped her mother with the care of the idiot children, in the public school, and were doing as well as the average Italian children of that grade.

"The explanation of this apparent mystery of the two sets of children, normal and degenerate, in the

same family, was found to be due to alcoholism in the case of the parents. The history of the family as it bears on the matter is as follows:

"Prior to 1900 the man worked for the Carnegie Steel Company in the Ohio works. The normal children were born during this time. In 1900 a local brewer wishing to establish a saloon among the Italians in Brier Hill found this man, who had saved some money, and got him to go into the saloon business. He built this house with the family living-room in the rear of the barroom and the sleeping-rooms on the second floor. The wife helped to tend bar, and both began to drink to excess; and it was during this period when both the man and his wife were drinking to excess that the three idiot children were born. The two older of these idiots have since died; the youngest, now about 9 years old, is living.

"Incidentally, it may be stated that the man lost his property and ended in debt to the brewery, and was obliged to ask charitable aid during the depression of 1908. He later went to work as a day laborer and became self-supporting. After their saloon was closed they both quit drinking to excess, tho they did not recover morally, and the youngest normal daughter is now in the Girls' Industrial Training School at Delaware, an incorrigible."

"FOOLISH TOLEDO!"

We clip the following from the *American Issue*:

Tax-burdened Toledo will spend \$100,000 for a workhouse and farm for city prisoners. A majority of these prisoners are such because of booze. Toledo is penny wise and pound foolish. Instead of building prisons and buying farms to care for the saloon product, why does she not close her saloon? They do not pay their way.

"INSANE" LEGISLATION.

The following from Bryan, which we clip from the *Plain-Dealer*, given at the recent wet and dry convention, seems to me "hits the nail on the head" in a most remarkable way:

"The moral effect of this victory will be tremendous," Col. Bryan continued. "It sounds the death-knell of the liquor traffic."

He urged total abstinence as wise for the individual and prohibition as necessary for the nation. On this subject he spoke, in part, as follows:

"One of the ways of testing a man's sanity is to put him in a tank of water, turn on a faucet, and then ask the man to dip the tank dry. If he goes on dipping without turning off the faucet he is regarded as insane. If he turns the faucet off it is a sign that he has not lost his reason.

"The illustration can be applied to legislation against the evils of intemperance. We make laws against drunkenness; we make provision for those who have been brought to poverty, crime, and insanity by the saloon. Are we wise enough to turn off the stream by stopping the sale of intoxicating liquor, or will we content ourselves with the unending work of taking care of those disabled by alcohol without being wise enough to stop the stream of evil that flows out from the saloons?"

SOME OF THE VICTORIES THE YEAR 1917 IS ALREADY GIVING US.

We clip the following from the *Jacksonville Times-Union*:

Washington, Jan. 8.—In the most sweeping of all decisions upholding prohibition laws, the Supreme

Court today upheld as constitutional and valid the Webb-Kenyon law prohibiting shipments of liquor from "wet" to "dry" states. It also sustained West Virginia's recent amendment to her law prohibiting importation in interstate commerce of liquor for personal use.

After having been vetoed by President Taft, who held it unconstitutional, and having been repassed by congress over his veto, the law was sustained by the Supreme Court by a vote of 7 to 2. Leaders of the prohibition movement declare it is to their fight second only in importance to the proposed constitutional amendment.

Lawyers for liquor interests who heard the decision today admitted it upheld and applied the law "in its fullest sense."

Wayne B. Wheeler, counsel for the Anti-saloon League of America, who, with Fred Blue, state prohibition commissioner of West Virginia, argued the case before the court, made this statement on the court's decision:

"The decision is a great victory for law enforcement. The states may now prohibit the possession, receipt, sale, and use of intoxicating liquor, and not be hampered by the agencies of interstate commerce acting as bartenders to bring the liquor into states."

Here is another clipping from the *Cleveland Plain Dealer* that shows progress:

FIGHT ILL, WARN AGAINST LIQUOR.

New York, Jan. 7.—To combat the spread of bronchial diseases which have caused a large increase in the number of deaths the last week, the Health Department began today the distribution thruout the city of thousands of circulars warning against the use of alcohol in any form. The circulars state that alcohol is one of the most powerful allies of the pneumonia germ, and that even moderate drinkers who contract the disease are less likely to recover than are abstainers.

Toward 25 years ago Mrs. Root was close to death with pneumonia. In fact, a council of doctors thought she would not live until morning. The doctor and two trained nurses declared she must have brandy. She, however, protested, and declared it made her worse, and appealed to me. Dear friends, it is usually a serious matter to go contrary to the decision of the doctor and nurses. I prayed over the matter, and decided she should not have *another* drop. Who can tell what would have happened had the brandy been given? She is now 75 and good for years to come, apparently.

HE DIDN'T "SCARE" WORTH A CENT.

We find the following in the *Connecticut Citizen*:

AN ANSWER THAT WAS UNDERSTOOD.

Mr. Sebastian S. Kresge, of Detroit, is the head of a chain of five and ten cent stores well known in this country. Mr. Kresge was one of the enthusiastic dry leaders in the Michigan campaign. Early in the fight he made a subscription of \$10,000. He later received a letter from a Milwaukee brewer warning him that the stock of the Kresge stores was on the open market, and liable to be purchased by the enemies of prohibition. His reply was one of the biggest shells thrown into the camp of the enemy during the Michigan battle. It reads as follows:

"Yes, I put \$10,000 into the Wayne County dry fight; and, since receiving your letter of inquiry, have added \$10,000 more."

No wonder the enemy are getting scared when their boycotting schemes meet rebuffs like the above.

\$20,000 WORTH OF BOOZE POURED INTO PLATTE RIVER AT DENVER.

Some good friend sends us a clipping with a picture of Denver police destroying \$8000 worth of confiscated liquors. On a previous occasion \$12,000 worth was taken from bootleggers, and thus served.

SOME OF THE THINGS THE TOBACCO-USER LOSES.

We clip the following from *Countryside and Suburban Life*:

JOHN BURROUGHS IS "PUT IN TUNE" BY NATURE.

One thing is certain, in a hygienic way I owe much to my excursions to Nature. They have helped to clothe me with health, if not with humility; they have helped sharpen and attune all my senses; they have kept my eyes in such good trim that they have not failed me for one moment during all the seventy-nine years I have had them; they have made my sense of smell so keen that I have much pleasure in the wild, open-air perfumes, especially in the spring—the delicate breath of the blooming elms and maples and willows, the breath of the woods, of the pastures, of the shore. This keen, healthy sense of smell has made me abhor tobacco and flee from close rooms, and put the stench of cities behind me. I fancy that this whole world of wild, natural perfumes is lost to the tobacco-user and to the city-dweller. Senses trained in the open air are in tune with open-air objects; they are quick, delicate, and discriminating. When I go to town my ear suffers as well as my nose. The impact of the city upon my senses is hard and dissonant; the ear is stunned, the nose is outraged, and the eye is confused. When I come back, I go to Nature to be soothed and healed, and to have my senses put in tune once more. That is why for many years I have lived in the country; and even when I have dwelt in the cities the country was always near by, and I used to get a bite of country soil at least once a week to keep my system normal.

The best-loved apostle of the outdoors in America lives at West Park, New York, where his home overlooks the Hudson. He is in his eightieth year.

SOME VERY KIND WORDS FROM AWAY OFF IN WALLA WALLA, WASH.

Dear Sir:—I must tell you I have read your home talks in GLEANINGS for the past 20 years. I never want to miss one of them. I have been away from my bees now two years and I read my journal just the same and still enjoy all the new things that come up in beekeeping even if I can't work with them.

I always hand GLEANINGS to some one, where I think they will do good, when I am thru reading, excepting some copies I want to keep always.

MISS ANITA A. BYERS.

Walla Walla, Wash., Dec. 14, 1916.

KILGORE'S 1917 SEED CATALOG.

Not only those who are *interested* in Florida gardening but those who *are* gardening in Florida, will get much information from the Florida seed catalog. The one above tells *what* to plant, *when* to plant, and *how* to plant and fertilize almost everything you want to grow. So far as I have had experience, I thoroly indorse its teachings.

Address Kilgore Seed Co., Plant City, Fla.

THE ROOT WINTER CASE

Continued from page 182

Some of the members of the convention thought it was cheaper to use the large quadruple winter case shown in Fig. 3, of the Alpaugh-Holtermann type, recommended by Dr. E. F. Phillips, of the Bureau of Entomology; but Mr. Root objects to this on account of the time it takes to pack the bees.

Mr. E. G. Carr, the director of the apicultural experiment station, as will be seen in Fig. 4, is trying out all methods of wintering. First, the Root case as already described; the Alpaugh-Holtermann winter case for four hives and double-walled hives as shown in the foreground, placed in pairs. We await with much interest the result of the different plans. The only criticism of this yard is the lack of windbreaks.

Fig. 3 shows a number of prominent beekeepers of New Jersey, including Mr. Walter S. Thorndyke, of the A. I. Root Company's office in New York, at the extreme right. The morning was quite chilly, and overcoats were very comfortable. On opening up some of the colonies the clusters were found to be in ideal condition, and large enough to winter well.



FROM 200 MILES NORTH OF WINNIPEG

We are a long way north, but we raise bees, make good honey and a lot of it. We got bees in combless packages from Alabama last year and they arrived in fair condition.

CHAS. McCORMICK.

Kenville, Manitoba.

*Continued from page 177*

thing. I am very well pleased with my experiment; and it has led me to believe that the business of shipping bees in combless packages from the South to beekeepers in the North is a success, and profitable both to the southern and northern beekeepers.

Lowville, N. Y. F. L. BARBER.

*Continued from page 180*

dition. I won't have a leaky cover or old rotten hive. It doesn't pay. I am certain that the business principles that govern the large mercantile establishments and manufacturing plants hold true in a business no greater than my beekeeping and honey-producing business. If not, why not?


IRA D. BARTLETT.

East Jordan, Mich.



A New Arrival in Jersey Royalty

A twenty-five thousand dollar son is the latest offering that the Jersey cow Sophie 19th of Hood Farm, the world's champion long-distance butter cow of all breeds has made to the dairy world. Sophie, for whom her owner, Mr. C. I. Hood of Lowell, Mass., refused an offer of \$50,000, is truly the dam of the golden calf, for her son now weighs about ninety pounds which in gold would be worth \$25,920, and Mr. Hood refused to consider a \$25,000 offer for the calf. Sophie has a record of over two and three-quarter tons of butter in six years, which is the greatest ever made by a cow of any breed.



Dairymen! —The Truth

You may be prejudiced against the Jersey because you don't know her. Look her up. She's the *Money Cow*.

Get This Book—a history of the breed and full of very interesting tests and facts. It proves conclusively that for pure dairy type, economy of production, richness of milk, long life and adaptability to feeds and climates—all these combined—she stands way above them all. This book "About Jersey Cattle" is free. Get your copy now. You'll find it mighty good reading.

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Write to Mr. A. L. Rice, Manufacturer, 11 North Street, Adams, N. Y., and he will send you a free trial package, also color card and full information showing you how you can save a good many dollars.

Write today.



GOOD SEEDS

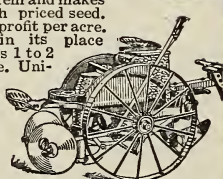
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FROM THE FIELD OF EXPERIENCE

Continued from page 184

"By what method do you ascertain the fertility of a queen?"

As soon as a young queen has been successfully mated her abdomen will commence to enlarge, continuing thus from two to three days, when eggs will be found in the cells. In late fall, after all queens cease to lay, the enlarged abdomen is all the criterion we can judge from.

"What is the best method of selecting queens and drones?"

To the average mind the all-important point in the breeding of bees is *nectar-gathering*. For this reason the breeding queen should be selected from stock which for years has proven the best for surplus honey; and the drone mother should be from as good gatherers, but, where practical, from stock not closely related to the queen mother. However, as we have very little control of this drone matter, especially where there are wild bees or other colonies as near as three to five miles, we cannot be at all sure that our carefully reared queens will mate with our carefully reared drones. The desired qualities to add to nectar-gathering, as I consider it, are longevity and vitality, good winterers, quiet and peaceable disposition, and, for comb or section honey, white capping of the completed product. These things may not all be suited for Brazil or other localities. Therefore it will devolve on the reader to find out what is best suited for the locality he may be in.

Borodino, N. Y. G. M. DOOLITTLE.

Continued from page 185

her first season, because he cannot know that she is the best queen-mother the yard affords.

Our plan is to buy or select our tentative queen-breeders, and have all introduced to colonies about the last of July. The following June these colonies are supered and dequeened on the same day. Any not fit for dequeening around June 25 to 30 are disqualified. Each of the queens is moved with one frame of issuing brood and about one pint of bees to a new stand. The issuing-brood frame is placed between two empty combs, and the rest of the hive filled out with foundation. Every effort is made to have the nuclei equal at this time.

In the old hive the approximate amount of brood is credited to each queen. Later on, all honey and wax the nuclei produce is

FROM THE FIELD OF EXPERIENCE

ascertained. Nine days after dequeening all cells are removed so as to render all old colonies queenless, and the longevity of the bees observed until about Oct. 1. The condition of the combs should be noted, and a queen caged in the cluster, to be released in 7 days. Those accepting queens should be noted, for this quality is important as time goes on, but one or more colonies will be worth further notice.

The prospective breeding queens soon have their nuclei up to good strength, which will again give an opportunity for the best ones to make a good showing. The weight of each is also a guide for honey-gathering qualities, and the amount of syrup each needs to carry thru winter should be noted.

The next June further observations on the old colony and on the one the selected queen heads at that time will leave no doubt which queen should be queen-mother for that year.

Cayuga, Ont.

W. A. LISHMAN.

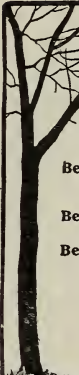
Continued from page 188

vaunt it as a food, *because* people do not buy it for either, but as a delicious adjunct to the bill of fare. My reasons are, that honey is not rated by medical men as a medicine, and is used only as a vehicle for medicines, if at all. It is not a food in the sense that it is a tissue-builder, but is an *energy producer*, a fuel to produce heat, the coal for the furnace, and in this respect identical with sugar, while its advantage over sugar is that it is predigested—that is, inverted by the bees before it is sealed, and further in the chemistry of the hive after it is sealed. A man can live on bread alone for a long time, on flesh meat alone, but would starve on any of the sugars, while they would live longer on some of the other carbohydrates, as tallow or whale blubber.

I have the best possible authority for the little red sticker. It is merely a paraphrase of the verse which reads: "Eat thou honey," but I wanted to make it brief, so I gave only that, deleting the best reason ever given for the use of honey, viz., "*because it is good.*" The "plain" talk, as our Quaker friends call it, is out of style, and I did not at all change the sense of the advertisement when I wrote "*Eat Honey.*"

"Eat (thou) honey, because it is good," is the best advertisement ever written.

Buck Grove, Iowa. DR. A. F. BONNEY.



**YOUR TREES NEED
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Because it kills every kind of scale and destroys the aphids eggs before they hatch

Because it wipes out the Pearl Psylla, Bud Moth and Case-Bearer. Also stops the growth of Canker and Collar Rot

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Hill's Evergreens Grow

Best for windbreaks and hedges. Protect crops and stock. Keep house and barn warmer—save fuel—save feed. Hill's evergreens are hardy, nursery-grown. Get Hill's free illustrated evergreen book and list of 50 Great Bargain Offers—from \$4.50 up per Thousand. 56 years' experience. World's largest growers. Write **D. HILL NURSERY CO.,** Evergreen Box 2462, Dundee, Ills. Specialists.



**WHITE SWEET \$3.90
CLOVER 3 Per Bu.**

BIGGEST MONEY-MAKER KNOWN—INVESTIGATE
The greatest forage plant that grows. Superior to all as a fertilizer. Equal to Alfalfa for hay. Excels for pasture. Builds up worn-out soil quickly and produces immense crops, worth from \$50 to \$125 per acre. Easy to start, grows everywhere, on all soils. Write today for our Big 100-page free catalog and circular about unhulled and scarified hulled sweet clover. We can save you money on best tested, guaranteed seed. Sample Free.

A. A. BERRY SEED CO., BOX 968, CLARINDA, IOWA

BUY SWEET CLOVER

Cattle pastured on it will fatten quickly and at small cost. Sown in the orchard between trees, it loosens the soil and promotes rapid growth of trees. Ploughed under it will increase crops wonderfully. Coming into rapid favor and use where once tried.

Best for Poor Land, Sandy or Clay Soils
Sow a few acres this season. Your land needs it. Great for worn-out farms. Rich in humus and nitrogen producing qualities. Inoculates land for alfalfa perfectly. Buy it of us. Get our free catalog of Garden and Field Seeds. Address
Grissold Seed and Nursery Co.
Dept. C-107 Lincoln, Neb.



Spray Your Crops KANT-KLOG SPRAYER


9 sizes of sprays from one nozzle. Starts or stops instantly—saves solution and work. Send for catalog. Agents wanted.
Rochester Spray Pump Co.
207 Broadway Rochester, N. Y.

IRON AGE

Farm, Garden and Orchard Tools

Answer the farmer's big questions:
How can I grow crops with less ex-
pense and labor? How can I grow
fancy fruit at low cost? The

IRON AGE Barrel Sprayer



No. 190

(horizontal) solves the spraying
problem for the busy farmer.
Can be used in any wagon,
cart or sled. Reliable easy-
working pump placed outside
the barrel—prevents rusting—
all parts easy to reach. 100 to
125 pounds pressure with two
nozzles. 60 and 100 gallon sizes.
We make a full line of spray-
ers. Write today for our free
booklet.

Bateman Mfg Co., Box 20E, Grenloch, N.J.

3 Garden Tools in 1

The BARKER Weeder, Mulcher and Cultivator

The only garden tool that successfully, in one op-
eration, kills weeds, and forms a complete soil
mulch to hold moisture. "Best Weed Killer
Ever Used." A boy with a Barker beats
ten men with hoes. Has shovels for
deeper cultivation. Self ad-
justing. Costs little. Write for illustrated folder
and special Factory-to-User
offer.




Barker Mfg. Co.
Box 10, David City, Nebr.

"Best" Hand Lantern



A powerful portable lamp, giving a 300 candle
power pure white light. Just what the farmer,
dairyman, stockman, etc. needs. Safe—Reliable
—Economical—Absolutely Rain, Storm and Bug
proof. Burns either gasoline or kerosene. Light
in weight. Agents wanted. Big Profits. Write
for Catalog. **THE BEST LIGHT CO.**
306 E. 5th St., Canton, O.


ORNAMENTAL FENCE



Attractive, Strong, Durable,
all steel, for Lawns, Churches
or Cemeteries. Costs less than
wood. **DIRECT TO YOU at
Manufacturers Prices.** Cat-
alogue Free. Write today.
KITSLMAN BROTHERS, Pat. 423 MUNCIE, INDIANA.

64 BREEDS

Valuable New Poultry
Book Free—103 pages.
Fine pure-bred chickens, ducks, geese and
turkeys. Choice, hardy, Northern raised.
Fowls, eggs and incubators at low prices.
America's greatest poultry farm. 24th year
in business. Write today for Free Book.
R. F. NEUBERT CO., Box 837, Mankato, Minn.



62 BREEDS.

Pure-bred Chickens, Ducks,
Geese, Turkeys. Hardy, north-
ern raised, vigorous, beautiful. Fowls, eggs, in-
cubators, at low prices. America's Pioneer Poul-
try Farm; 23 years' experience. Large fine Annual
Poultry Book and Catalog FREE.
F. A. NEUBERT, Box 693, Mankato, Minn.



450,000 TREES

200 varieties. Also Grapes, Small Fruits, etc. Best rooted
stock. Genuine, cheap. 2 sample currants mailed for 10c.
Catalog free. **LEWIS ROESCH, Box H, Fredonia, N. Y.**

HEADS OF GRAIN FROM DIFFERENT FIELDS

Continued from page 214

in sacks. A few mornings ago one of my boys complained to me that he could hardly feed the cows on account of the bees on the cotton-seed-meal sacks. I know that they are using some of this artificial pollen, but quite a bit of natural pollen is being brought in from the neighboring swamps also.

I have placed feeders under a few of my colonies in the home yard, to hasten the rearing of drones; and as soon as I find any sealed drone brood I intend to begin rearing queens for spring increase.

We always have cold and disagreeable weather in February; and while the bees are well supplied with winter stores at present the likelihood is that the great amount of brood that is now being reared is going to cause a serious shortage of stores about the latter part of February; and I may have to feed some of my colonies in order to keep them from starving before fruit bloom in March.

While we get some tupelo honey in this immediate section, it is mixed with honey from other sources, and has to be sold as off grade. My most profitable honey source is from gallberry, the flow of which comes off in May. My gallberry crop last season was a failure on account of excessive drouth; but I have never known two successive failures from this source, and am expecting a fine crop this year. I have always secured a splendid crop of cotton honey during June and July; but boll-weevils struck this section last season, and it is likely that very little cotton will be planted here another year. However, I am not at all discouraged over the outlook, and am preparing to increase to 500 colonies this spring. N. L. Stapleton.

Colquitt, Ga., Jan. 12.

A Good Record
for Ten Days
During May

Last season we had a
short but very heavy
honey-flow in May.

My record colony was
in a two-story hive in the spring. It had
two full-depth supers added at the be-
ginning of the honey-flow, the supers con-
taining full sheets of foundation. The
bees were three-banded Italians. The
daily gain as registered on a pair of ac-
curate counter scales was as follows:

May 5, 5¾ lbs.
May 6, 13 lbs.
May 7, 16½ lbs.
May 8, 25½ lbs.
May 9, 17 lbs.

May 10, 17½ lbs
May 11, 18½ lbs.
May 12, 10 lbs.
May 13, 10½ lbs.
May 14, 10 lbs.

The total gain for the 10 days was 143
pounds, or a little over 14 pounds a day.
As shown, during the three heaviest days
the gain totaled 60 pounds. L. Parker.

Benson, N. C.

TALKING QUEENS

Laws Queens Speak for Themselves

Please remember Laws' queens have stood the test of continuous advertising in this journal for this the 28th season. Thousands of customers have testified to the merits of Laws' bees and queens, and if there is a displeased customer I do not know it.

I will begin mailing queens as usual in March. Single tested queen, \$1.25. Select Tested, \$2.00. Untested will be ready in April; after which see the following table.

	April to June			June to November		
	1	12	100	1	12	100
Untested	\$1.00	\$ 9.00	\$ 75.00	\$.75	\$ 8.00	\$ 65.00
Tested	1.25	10.00	85.00	1.00	10.00	75.00
Select Tested	2.00	18.00	120.00	1.50	15.00	100.00

Breeding queens: Guaranteed none better, at all times: each \$5.00

Comblless Bees AFTER May 1st.

1 lb. package, \$1.50; 5 to 10 packages each, \$1.25; 10 to 50 packages, \$1.15
2 lb. package, 2.50; 5 to 10 packages each, 2.25; 10 to 50 packages, 2.15
3 lb. package, 3.50; 5 to 10 packages each, 3.25; 10 to 50 packages, 3.15

Price of queens to be added to above packages.

When 10 or more packages are bought, empty carriers to be returned at my expense.

My queens are all reared in full colonies, plenty of young bees and abundance of fresh honey in the hives. No other plan is so conducive to full-developed and long-lived queens.

My facilities are such that I can mail from 5000 to 6000 queens each season. Circular on application.

Five per cent discount on all orders with the cash for either bees or queens booked this month.

Purity of stock and safe delivery guaranteed to your express or post office on all bees and queens from my yards.

Address **W. H. Laws, Beeville, Bee County, Texas**

Three-band Italian Queens

I am now booking orders for early spring delivery of queens at $\frac{1}{4}$ cash and the balance when the queens are shipped. Send in your orders now and get your queens when you want them.

Prices April 1st to July 1st.

	1	6	12
Untested	\$.75	\$4.25	\$8.00
Selected untested .....	.90	5.00	9.00
Tested	1.25	7.00	13.00
Selected tested..	2.00	11.00	20.00

After years of careful selecting and breeding, I now have my stock bred up to a very high standard. **THEY ARE BRED FROM IMPORTED STOCK**, the very best in the world for honey gathering and gentleness. They are not given to swarming.

GUARANTEE that every queen will reach you in first-class shape, to be purely mated, and to give perfect satisfaction. All queens that do not give satisfaction I will replace free of charge or return your money.

L. L. Forehand, Fort Deposit, Ala.



BEES

For Sale



April the 15th is the date on which we can ship you the best three-banded bees and queens on the market; we have been in the bee business continually for twenty-four years and have been striving to secure the best three-banded bees which money could buy and skill produce, all these years. Judging from the many letters which we have received from satisfied customers, we have succeeded in our efforts. We believe we can furnish you with the best honey-gatherers to be found anywhere. You will find our nuclei better filled with bees and brood than any other nuclei you can buy. All our bees are on standard, wired, Hoffman frames; full sheets of foundation. File your orders now, sending money when you want the bees shipped. Satisfaction and safe arrival guaranteed.

We quote without queen, as follows:—

Three-frame nuclei	\$2.25
Two-frame nuclei	1.75
One-frame nuclei	1.25
Three pounds bees	\$3.25
Two pounds bees	2.25
One pound bees	1.50

If queen is wanted with bees add price of queen wanted.

Young, untested queens.....	\$.75
Young, tested queens.....	1.00

The Hyde Bee Co., Floresville, Tex.

BEE LINE BEES

. . for . .

Quality - - - Service

Our Italian bees are hustlers, gentle to handle, cap their honey white, are very resistant to European foul brood and are a very handsome bee to see. In fact they are second-to-none bees.

Satisfaction and safe arrival are guaranteed. Orders booked now and bees shipped when wanted.

Bees by pound ready for shipment April 1, prices without queens:

1-lb. package \$1.50; 6, \$ 8.50; 12, \$16.00; 25, \$33.00; 50, \$ 65.00; 100, \$125
2-lb. package 2.50; 6, 15.00; 12, 29.50; 25, 58.50; 50, 116.00; 100, 225

With each shipment of bees we send printed instructions as to how to handle them to build them into full colonies.

QUEENS.—We are wintering over a fine lot of late fall-reared queens. Should you want a tested queen early we have them. All of our queens are sent out under an iron-clad GUARANTEE to satisfy or they will be replaced or your money refunded. Prices for queens till May 10th.

Untested, 1 for.... \$1.00; six for \$ 5.50; twelve for \$10.00; 100 for \$75.00
Tested, 1 for..... 1.25; six for 6.50; twelve for 12.00
Select Tested, 1 for. 2.00; six for 10.00; twelve for 18.00

We will allow 5 per cent discount on all orders received with cash till the first of April. With each shipment of bees and queens we send a copy of state entomologist health certificate. Any queens that should prove mismated will be replaced when returned to us.

B. M. Caraway, Bee Line Apiaries, Mathis, Texas

NO BETTER BEES THAN THESE

From April 15 to July 1 we shall have 30 pounds of combless bees a day. These bees are bred from Dr. C. C. Miller's best—and there are no better. The demand from the North for such bees is likely to be large this spring. Beekeepers are going to be on the jump this year because of the bright prospects ahead. So book your order early with us and you will know just when the bees will be shipped—and remember we will not book more than we can supply. Here are our prices.

Safe Arrival and Satisfaction Guaranteed

½-lb. package \$1.50.
One to five 1-lb. packages, \$2.00; 6 to 9, \$1.70; 10 to 100, \$1.60.
One to five 2-lb. packages, \$3.00; 6 to 9, \$2.70; 10 to 100, \$2.60.
One to ten 1-fr. nuclei, \$2.00 each; 10 or more, \$1.85.
One to ten 2-fr. nuclei, \$3.00 each; 10 or more, \$2.60.
One to ten 3-fr. nuclei, \$4.00 each; 10 or more, \$3.60.
Full colony, 8 frame, \$6.50; 10-frame, \$7.50.

All prices include an untested queen. Ten per cent of the amount of order should be sent when asking us to book your order.

QUEENS from Dr. Miller's best breeders, \$1.00; \$11.00 per dozen. Tested, \$2.00; select tested, \$3.50; tested breeders, \$5.00 to \$10.00. Shipments from Starkville, Miss.

Stover Apiaries, Starkville, Mississippi



Forehand's QUEENS

Which Colony is Yours, Mr. Beekeeper?

How many of you were disappointed last season when you harvested your honey crop? You can make every colony a good one. **WHY NOT?** Just head it with a young vigorous three-band Italian queen. She will cost you only 75c, just 3 lbs. of honey. **YOU** can easily make a gain of 16 lbs. over the inferior colony, which is a net gain of \$3.75. Good pay for introducing one queen, not considering the increased value of the colony.

Spring will soon be here, the time to requeen that colony with the bad queen. **CAN** you spend your time more profitably now than deciding what stock, and where to purchase your early queens? Give us a trial. We breed only the pure three-band queens. All of our yards are the purest that can be bred. So you take no risk in getting a hybrid from us.

Four reasons why you should use our queens: 1st—They are first-class honey-gatherers. 2d—They are the most vigorous, and highly resistant to foul brood. 3d—The Imported bees (which ours were reared from) are the gentlest bees known. 4th—The most modern and learned beemen in the world today (the *Roots*) use the three-bands. **WHY?** Because they are best.

We have had 25 years of experience in rearing queens, having started with Doolittle, and such men. We have 1000 nuclei, which makes it possible for us to fill orders promptly. Three expert queen-breeders have charge of nuclei. So we do not overwork, which gives us ample time to improve our stock. None but first-class queens are mailed. We give a first-quality queen at a medium price, and guarantee perfect satisfaction and safe delivery.

Untested	One, \$.75	Six, \$ 4.25	Twelve, \$ 8.00
Selected untested	One, 1.00	Six, 4.75	Twelve, 9.00
Tested	One, 1.50	Six, 8.75	Twelve, 17.00
Selected tested	One, 2.00	Six, 11.00	Twelve, 20.00

Write for circular giving general description. Mail all orders to

W. J. FOREHAND & SONS, Fort Deposit, Alabama

For Sale--- 10,000 lbs. of Bees in Packages--- Spring Delivery

**20 YEARS OF SELECT BREEDING GIVES US BEES OF THE HIGHEST QUALITY
BEES FOR HONEY PRODUCTION..... BEES OF UNUSUAL VITALITY**

M. C. Berry & Co., Hayneville, Ala.

Gentlemen:—Will want more of your three-pound packages of bees with queens in spring. The two I bought of you last May did all right; one package made 185 sections of honey and gave one swarm and the other made 296 sections and gave two swarms. I am well pleased.

Kimmell, Ind., Jan. 15, 1917.

Malvin Wyseng.

Very Resistant to European Foul Brood and Safe Arrival Guaranteed.

Swarms of Bees Without Queens April First Delivery

1-lb. packages, \$1.25 each;	25 to 50, \$1.22½ each;	50 to 100 and up, \$1.20 each
2-lb. packages, 2.25 each;	25 to 50, 2.22½ each;	50 to 100 and up, 2.20 each
3-lb. packages, 3.25 each;	25 to 50, 3.22½ each;	50 to 100 and up, 3.20 each

Golden and 3-Band Italian Queens April First Delivery

Untested 75 cts. each, \$65.00 per 100	Tested \$1.25 each, \$110 per 100
Select Untested 90 cts. each, 75.00 per 100	Select Tested 1.50 each, 125 per 100

Queens' wings clipped free of charge.

Write for descriptive price list.

Let us book your order now.

Only a small deposit down required.

LARGEST AND MOST SUCCESSFUL SHIPPERS OF BEES IN PACKAGES

M. C. BERRY & COMPANY, Hayneville, Alabama, U. S. A.

If You Need a QUEEN for a Queenless Colony

you want it as soon as you can get it and you want a good one. We can furnish tested queens by return mail for \$1.00 each. We breed the three-band Italians only and we breed for the best. Satisfaction guaranteed on all queens. No disease in our apiaries.

J. W. K. Shaw & Co., Loreauville, La.

BEEKEEPERS' SUPPLIES

Send for new 1917 price list now ready. We are also in the market at all times for extracted and comb honey in any quantity. Give us a chance to bid on your supplies. We can save you money.

**The M. C. Silsbee Co., Haskinville, N. Y.
P. O., Cohocton, N. Y., Rt. 3.**

BEES and QUEENS for 1917

Golden and Leather Colored. Canadian and U. S. Trade

We are now booking deliveries in May, June, July, 1917, at following prices:

QUEENS FROM PENN, MISS.				QUEENS FROM TORONTO, ONTARIO				
Prices one and over	1	6	12	25 to 100	1	6	12	25 to 100
Untested	\$.85	\$4.50	\$ 8.00	\$.65 each	\$1.00	\$4.80	\$ 9.25	\$.75 each
Warranted . .	1.10	5.50	9.50	.75 each	1.35	5.80	10.75	.85 each
Tested	1.50	7.50	13.50	1.05 each	1.75	7.80	14.75	1.15 each
Breeders	\$3.00 to \$10.00 each				\$3.00 to \$10.00 each			

POUND PACKAGES WITH UNTESTED QUEENS FROM PENN, MISS.				TORONTO, ONTARIO, CANADA			
Prices of one or more	1 to 5	6 to 25	50 over	1 to 5	6 to 25	50 over	
	each	each	each	each	each	each	
1 pound and queen	\$.25	\$2.00	\$1.90	\$3.00	\$2.75	\$2.65	
2 pound and queen	3.00	2.75	2.65	4.50	4.25	4.00	

Prices on full colonies and nuclei quoted on request.

We supply the **ROOT CANADIAN HOUSE**, 54 Wolseley St., **TORONTO, ONTARIO, CANADA**, with large shipments almost daily during the above months, frequently moving almost a car of packages to them at a time. This is the most successful way of serving Canadian trade. This firm has our entire agency for the Dominion, and all Canadian business should be addressed to them; unless you wish shipments made direct from Penn, Miss., address us.

At time of booking order remit 10 per cent as a form of good faith on your part with remainder to be remitted a few days prior to date of shipment.

We move orders promptly. Our references, any mercantile agency, The A. I. Root Co., or American Bee Journal.

When you deal with us it means satisfaction. Health certificates furnished with each and every shipment of bees. This assures you that no delays will take place. Safe delivery guaranteed.

If interested in beehive material our catalogs will be sent on request.

The Penn Company, Penn, Mississippi, U. S. A.

MURRY --- HE PAYS THE EXPRESS

If you live within the outer limits of the 6th postal zone (your postmaster will tell you about that), order your pound packages of me. If you return the cages in one parcel and in good condition I will refund the express charges you have paid. This applies only to 12 or more packages to points in the U. S. Special rates to points in Canada. Make your arrangements 30 days in advance to insure prompt shipments.

Pound packages of bees	12	25	50	100
1-lb. pkg.	\$16.00	\$33.00	\$ 65.00	\$127.00
2-lb. pkg.	29.50	58.50	116.00	230.00

Safe arrival guaranteed within five days of Mathis, Tex.

If queens are wanted add price of queens wanted to above prices.

I have yet failed to find anything better than the strain of Three-banded Italians I have been breeding. They have made good in all parts of America and many foreign countries. Resistant to Isle of Wight disease in England, and European foul brood and paralysis in America. The best honey-gatherers I can find; gentle to handle, requiring but little smoke to control, and cap their honey white.

There are Golden and Golden, but I have at last secured the real **GOLDEN ITALIANS**. Prettiest bees I ever saw, and good honey-gatherers. Some colonies of my present strain stored as much as 250 pounds of surplus honey the past season. Gentle to handle.

Three-banded Italians and Golden are bred in separate yards, so far distant as to make cross mating improbable. Every queen guaranteed. I will cheerfully replace any of my queens that prove to be mated if returned to me.

Prices	March 15th to May 1st			May 1st to Nov. 15th			
Queens	1	6	12	1	6	12	100
Untested	\$1.00	\$ 5.50	\$10.00	\$.75	\$4.00	\$ 7.50	\$60.00
Tested	1.25	6.50	12.00	1.00	5.50	10.00	
Select tested	2.00	10.00	18.00	1.50	8.00	15.00	
Breeders	5.00 to 10.00 each, any time.						

Orders filled by return mail is the rule at this shop.

Decidedly the best way for the beginner to start with bees is with nuclei, consisting of 1, 2, or 3 combs of bees, brood, and honey. With ordinary care they build up and store a crop of honey the same year, if secured in the spring. Ship anywhere. Never lost one in transit in my life.

1-frame nucleus without queen, \$1.50; 2-frame nucleus without queen, \$2.50

3-frame nucleus without queen, \$3.50 f. o. b. Mathis, Tex.

Add price of queen wanted to above prices. Any number wanted at these prices. No disease. Health certificate with every shipment of bees or queens. Satisfaction guaranteed.

H. D. MURRY, MATHIS, TEXAS

"Griggs Saves You Freight" TOLEDO

is the place to order your 1917
supplies from, and GRIGGS is
waiting for your order.

We are well supplied with a fine stock of Root's Goods for the following season; and if a saving of time and money means anything to you, Mr. Beeman, wherever you are, don't overlook getting our catalog and prices.

Promptness and satisfaction is our motto, whether you have one hive or 500.

HONEY and Beeswax always wanted. Special price list on bees and queens, also Poultry Feeds, mailed with Catalogs.

S. J. GRIGGS & CO.

Dept. 25 Toledo, Ohio
"Griggs Saves You Freight"

When Ordering Supplies

remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk.
Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine.
J. B. MASON, Manager

BEE-HIVES

We keep in stock several styles of hives. Our 8 and 10 fr. chaff hives are packed with fine cork and are not heavy enough to be cumbersome. We also have 8 and 10 fr. single-walled hives.

BEES

We furnish a full colony of Italian bees with a tested Italian queen in a new 8-fr. chaff hive, with complete super for \$13.50. In a single-walled hive, \$11.00. Also nucleus colonies and bees by the pound.

Our 26th annual catalog giving prices on everything a beekeeper uses, mailed upon request.

I. J. Stringham, 105 Park Pl., N. Y.
Apiaries: Glen Cove, L. I.

PORTER BEE-ESCAPE Saves Honey, Time, Money



For Sale by All Dealers

THE A. I. ROOT CO., Medina, Ohio
General Agents for the United States

R. & E. C. PORTER, Manufacturers
Lewistown, Ills., U. S. A.

Full Values in "FALCON" Beekeepers' SUPPLIES

For the last forty odd years during our manufacture of "FALCON" supplies it has been our endeavor to place upon the market the very best possible line of supplies, and we pride ourselves in having accomplished this. "FALCON" supplies have not only been recognized as the best in this country, but also a leader in other countries. Nothing expresses the superiority of the "FALCON" ware better than the many kind and pleasing words we receive from our satisfied customers, and the ever-increasing demand for "FALCON" supplies.

The season is drawing nearer and beekeepers should endeavor to order early. By making up your wants now you will be better fitted to go into the season with a view of not only obtaining a bigger crop but to facilitate matters thruout the season. If you will make up a list of requirements for quotation we will be glad to quote.

Red Catalog, postpaid

Dealers Everywhere

"Simplified Beekeeping," postpaid

W. T. FALCONER MFG. COMPANY, FALCONER, NEW YORK
where the good beehives come from.

SOUTHERN-BRED BEES AND QUEENS

REARED IN THE GULF COAST COUNTRY

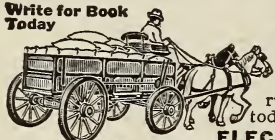
THREE-BANDED ITALIANS. We are breeding from the best selected from **ELEVEN YARDS.** Ten per cent discount on all orders received 30 days before shipment is to be made. We believe that there is a **BRIGHT FUTURE** before the Northern beekeeper in making up his winter loss and strengthening up his weak colonies by getting bees from the South in 1 and 2 lb. packages; and you can always have your queens sent safely this way. Every beekeeper knows what it means to have strong colonies at the commencement of the honey-flow. Every northern beekeeper ought to try from 2 to 5 packages this year. It will not cost you much, and may mean much to you in the **FUTURE.** We guarantee safe arrival on all bees in 6 days of here. Reference, The Guaranty State Bank, Robstown, Texas.

	1	6	12	50		1	6	12	25	50
Untested . . .	\$1.00	\$ 5.50	\$10.00	\$38.00		1 lb.	\$1.50	\$ 8.50	\$16.00	\$33.00
Tested	1.25	6.50	12.00	45.00		2 lb.	2.50	15.00	29.50	58.00
Select Tested.	2.00	10.00	18.00	65.00						115.00

Let us know your wants. Circular free.

Nueces Valley Apiaries Calallen, Nueces Co., Texas

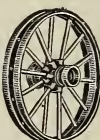
Write for Book
Today



FARM WAGONS

High or low wheels—steel or wood—wide or narrow tires. Steel or wood wheels to fit any running gear. Wagon parts of all kinds. Write today for free catalog illustrated in colors.

ELECTRIC WHEEL CO., 23 Elm Street, Quincy, Ill.



850,000 GRAPE-VINES

69 varieties. Also Small Fruits, Trees, etc. Best rooted stock. Genuine, cheap. 2 sample vines mailed for 10c. Descriptive catalog free. **LEWIS ROESCH, Box H, Fredonia, N.Y.**



Old Reliable
Three-banded



ITALIAN QUEENS

Will book orders now. Untested
Queens ready to mail April 1.

As I am located in the southern part of the state where we have an early spring, I can rear *Queens of High Quality* much earlier than most other breeders, and as I am a honey producer as well as a queen-breeder, I believe I am in a position to know the value of good queens. I have never had a case of foul brood in any of my colonies. If you want queens that are exceptionally vigorous and prolific, that produce bees that are gentle and the best of honey-gatherers, let me book your order. Will guarantee safe arrival in the United States and Canada. Send for free circular and price list.

Untested, \$1.00; 6, \$5.00; 12, \$ 9.00
Tested, 1.25; 6, 6.50; 12, 12.50

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QUEENS Select Italians; bees by the pound; nuclei. 1917 prices on request. Write

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ARCHDEKIN'S Fine Italian QUEENS and Combless Bees

April, May, June, queens, warranted purely mated \$1.00 each, 6 for \$5.00, doz., \$9.00. Bees per lb. \$1.25. With untested queen, \$2.00 per lb. I have originated a package light, but strong. Saves you bees and express. My guarantee is prompt shipment, safe arrival, perfect satisfaction. No disease.

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Increase Your Honey Crop

by introducing some of Leininger's strain of Italian Queens which have a record of 30 years as to honey-gathering qualities and gentleness are unexcelled. Disease has never appeared in our apiaries. Queens will be ready June the first. Untested, each, \$1; 6, \$5. Tested, each, \$1.25; 6, \$5.50. Breeders, \$5.

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GRAY CAUCASIANS



Early breeders; great honey-gatherers; cap beautifully white, great comb builders; very prolific; gentle; hardy; good winterers. Untested, \$1.00. Select untested, \$1.25. Tested, \$1.50. Select tested, \$2.00. The best all-purpose bee. Bees by the frame and pound.

H. W. FULMER, Box G, Andalusia, Pa.



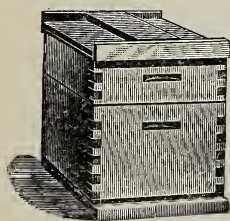
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Fine stock of the wonderful Everbearing plants at right prices. Small fruit plants for farm and garden. Write for catalog. Return this ad. and several fruit-growers names for one-half dozen Everbearing plants free.

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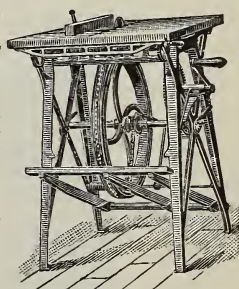
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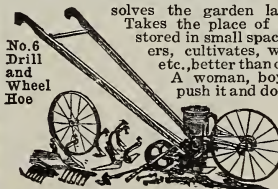
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solves the garden labor problem. Takes the place of many tools—stored in small space. Sows, covers, cultivates, weeds, ridges, etc., better than old-time tools.

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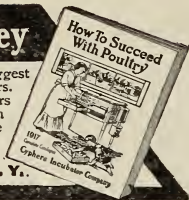
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1917 is going to be the biggest year known for poultry raisers. Start right—Get the Cyphers Book—A mine of information which shows the way. Write for free copy.

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Write at once for my 48-page catalog and all particulars. Address J. H. Bush, Pres., Dept. 312.

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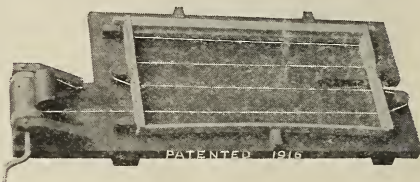
I am better able to supply the trade with my three-banded Italian queens, colonies and nuclei than ever before. Send for circular and prices.

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Beginner's Book of 28 Pages, Free

Also our 44-page Bee-supply Catalog for 1917 is ready for mailing. Ask for your copy now. **OUR PRICES ON BEES AND QUEENS:** 1 lb. of bees with queen, \$2.25; 10 lbs., \$20.50; 100 lbs., \$190.00; 1 frame with queen, \$2.00; full colonies, one-story hive included, \$8.75; untested queens, 75c each. Our complete price list free, and safe delivery guaranteed.

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WRIGHT'S FRAME-WIRING DEVICE

Most rapid in use. Saves cost of machine in one day. Tighter wires; no kinks; no sore hands. Price, \$2.50, postpaid in U. S. A.

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The Secret of Success in beekeeping is to keep your colonies strong. To do this you must have good healthy laying queens.

Untested... \$.75; 6, \$4.25; 12, \$ 8.00
Select unt.. 1.00; 6, 5.00; 12, 9.00
Tested 1.50; 6, 8.00; 12, 15.00
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Safe delivery guaranteed. We solicit your order.

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We spare neither labor nor money to produce the very best that can be had. We pay special attention to honey-gathering qualities, but do not forget gentleness, beauty, etc. Having several hundred colonies in outyards to select our breeders from, we are sure we offer you something good. We begin about April 12th to send out swarms, also untested queens.

1 to 49—1 lb. bees in packages \$1.50 each 1 to 49—2 lbs. bees in packages \$2.50 each
50 to 500—1 lb. bees in packages 1.37½ each 50 to 500—2 lbs. bees in packages 2.37½ each

The above is without queens. Add price of queens wanted. F. O. B. Fitzpatrick, Ala.

Untested queen April and May, 1, \$.75; 100, \$75.00. June, 1, \$.75; 12, \$ 8.00; 100, \$ 60
Tested April and May, 1, 1.25; 100, 125.00. June, 1, 1.20; 12, 14.00; 100, 115
Select tested April and May, 1, 2.00; 100, 200.00. June, 1, 1.90; 12, 22.00; 100, 180

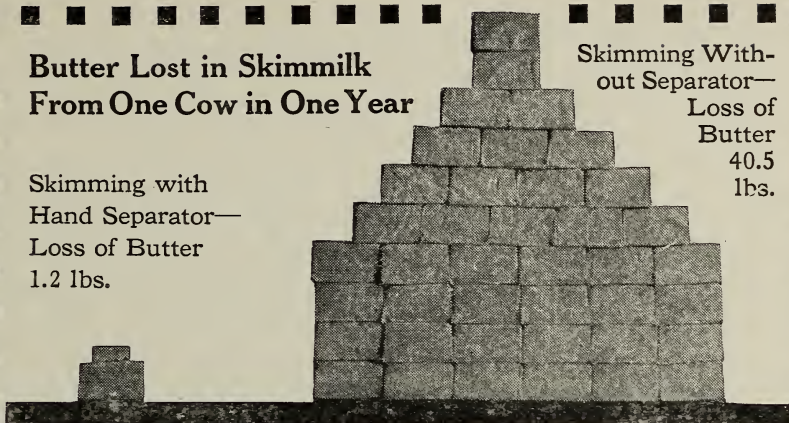
Very best queens for breeding \$3.00. If any of our untested queens prove to be mated we are willing to replace her free of charge. No foul brood has ever been in our vicinity. I guarantee safe arrival and satisfaction on all we send out.

W. D. ACHORD, Fitzpatrick, Alabama, U. S. A.

Butter Lost in Skimmilk From One Cow in One Year

Skimming with
Hand Separator—
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1.2 lbs.

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lbs.



Which Pile Did *You* Lose?

These figures from the Purdue Experiment Station Bulletin No. 116 show the difference in loss of butter when you use a cream separator and gravity skimming. You will notice that the Hand Separator is nearly 40 times as efficient—in fact *no profit* in dairying can be made without one. Buy a

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SUCTION-FEED CREAM SEPARATOR

Because it gets all the cream at widely varying speeds. It doesn't lose cream when turned below speed. It's the only separator that doesn't.

Because it delivers cream of even thickness, no matter how the speed is varied. It's the only separator that does.

Because the capacity can be increased by simply turning it faster. It's the only separator that can.

Because the simple tubular bowl has no discs to wash or to mix up. There is only one piece in the bowl, so that washing up is easy and quick.

You can easily pour milk from a 40-quart can into the low Sharples supply tank.

The Sharples is ruggedly built for hard service. It turns very easily, due to the ball bearing running in oil. And, remember, *it gets all the cream all the time.*

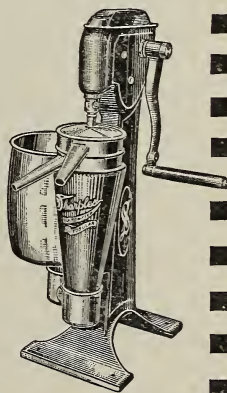
Send for our catalog "*Velvet*" for *Dairymen* which fully describes the New Sharples Suction-feed Separator and the extra profits it will earn for you.

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Notices will be inserted in these classified columns for 25 cts. per line. Advertisements intended for the department cannot be less than two lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

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Beeswax bought and sold. Strohmeier & Arpe Co., 139 Franklin St., New York.

Amber honey in new 60-lb. cans at 10 cts.
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FOR SALE.—No. 1 white comb, \$3.50 per case; No. 2, \$3.00; No. 1, fall comb, \$3.00; No. 2, \$2.50; 24 sections to case. In six-case lots 10 per cent discount.
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HONEY FOR SALE in 60-lb. cans, 2 cans in each case. Amber, 7½ cts. per lb. Buckwheat, 7 cts. Sample, 10 cts., F. O. B. here.
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HONEY AND WAX WANTED

WANTED.—Extracted honey at jobbing prices. National Honey-Producers' Asso., Kansas City, Mo.

WANTED.—Clover and amber extracted honey. Highest price. Deroy Taylor Co., Newark, N. Y.

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Superior Honey Co., Ogden, Utah.

WANTED.—Extracted clover honey in any quantity; send sample and lowest cash price.
E. B. Rosa, Monroe, Wis.

WANTED.—White-clover and light-amber extracted honey. Will buy in lots of 1000 lbs. to a carload. Send sample and lowest price.
M. E. Eggers, Eau Claire, Wis.

WANTED.—Extracted honey in both light and amber grades. Kindly send sample, tell how honey is put up, and quote lowest cash price delivered in Preston.
M. V. Facey, Preston, Minn.

BEESWAX WANTED.—We are paying higher prices than usual for beeswax. Drop us a line and get our prices, either delivered at our station or your station as you choose. State how much you have and quality.
Dadant & Sons, Hamilton, Illinois.

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HONEY LABELS.—Most attractive designs. Catalog free.
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SEND TODAY for sample of latest Honey Labels. Liberty Pub. Co., Sta. D, box 4-E, Cleveland, Ohio.

FOR SALE.—A full line of Root's goods at Root's prices.
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Lewis 10-frame 4 x 5 supers, 100, used one season. Cheap.
H. B. Allen, Cozad, Neb.

FOR SALE.—Two 2-frame Cowan extractors; 200 standard comb-honey supers.

C. E. Keister, Rt. 1, Clarno, Wis.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap.
White Mfg. Co., Paris, Tex.

We carry a complete line of bee-supplies. Ask for our bee-supply catalog. Let us quote you on your requirements. Deroy Taylor Co., Newark, N.Y.

THE ROOT CANADIAN HOUSE.—54-56 Wolseley St., Toronto, Ont. (note new address). Full line of Root's famous goods; also made-in-Canada goods. Extractors and engines; GLEANINGS and all kinds of bee literature. Get the best. Catalog free.

Good second-hand 60-pound cans, 2 cans to the case, 35 cents per case in lots less than 25 cases. In lots of 25 cases or more, 30 cents per case. These prices are f. o. b. Cincinnati. Terms, cash with order. C. H. W. Weber & Co., Cincinnati, O.

Perfection swarm-catcher, no ladder, no cutting of fruit-trees. Bees take right to it. It is the missing link in bee culture, a blessing to beekeepers. Ladies can handle it. Directions with each order. Shipping wt. ½ lb. Price \$1.50.

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FOR SALE.—Well-established retail honey business in one of the largest industrial centers of the world. Reason for selling is that my apiaries are too far away to work to advantage, so I wish to move near the bees and devote all my time to them. A rare opportunity for a live man with a little capital. Established 1910. John C. Bull, 811 So. Hohman St., Hammond, Indiana. Phone 1023 J.

FOR SALE.—Fifty new ten-frame hives with metal covers complete, with frames nailed and wired at \$1.75 each, in lots of 25 or more at \$1.50 each; also 50 ten-frame supers nailed and wired, hives and supers painted two coats, at 60 cts., each, for the supers; in lots of 25 or more 50 cts. each.

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A 4 x 5 camera, with complete outfit, as good as new, in exchange for a two-frame extractor.
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Wax and old combs wanted for cash or to make up on shares, beekeeper to factory direct.
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Caponizing set with book of instructions, cost \$3.50; never used. Exchange for bees or supplies.
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WANTED.—Man to wear fine suit, act as agent. Big pay, easy work.
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WANTED.—To work an apiary in a good location on shares, with preference of buying. Must be free from disease.
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WANTED.—Care of an apiary or general apiary work, by experienced reliable man.
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WANTED.—Bees in lots of 25 to 250 colonies within 300 miles of Detroit. Correspondence with full particulars solicited.
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WANTED.—Shipments of old comb and cappings, for rendering. We pay the highest cash and trade prices, charging but 5 cts. a pound for wax rendered.
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OLD COMBS WANTED.—Our steam wax-presses will get every ounce of beeswax out of old combs, cappings, or slungum. Send for our terms and our new 1917 catalog. We will buy your share of the wax for cash or will work it into foundation for you.
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FOR SALE.—Bees, residence, and land. Good offer. Inquire Rt. 1, Box 1, B, Aitkin, Minn.
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PROFITABLE LITTLE FARMS IN VALLEY OF VIRGINIA, 5 and 10 acre tracts, \$250 and up. Good fruit and farming country. Send for literature now. F. H. LaBaume, Agr. Agt. N. & W. Ry., 246 Arcade Bldg. Roanoke, Va.

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A small farm in California will make you more money with less work. You will live longer and better. Delightful climate. Rich soil. Hospitable neighbors. Good roads, schools, and churches. Write for our San Joaquin Valley illustrated folders free.
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FOR SALE.—Ten-acre farm in Maricopa Co., Arizona, 4 miles east of Phoenix, and one lot in corporation of Phoenix. Orchard of 600 fruit-trees; house, good well; house for extracting honey, Cowan reversible extractor; one-burner gasoline-stove, capping-melter, wheelbarrow, hives. For further particulars address John S. Miller, Rt. 9, Archbold, O.

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Finest Italian queens. Send for booklet and price list. Jay Smith, 1159 DeWolf St., Vincennes, Ind.

FOR SALE.—50 colonies of bees.
J. R. Coulson, Rt. 5, Box 12, Portland, Ind.

Well-bred bees and queens. Hives and supplies.
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Full colonies fine Italian bees at bargain prices. Write J. York Trigg, 811 Elm St., Dallas, Tex.

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My choice northern-bred Italian queens are hardy, and will please you. Orders booked now for spring delivery. Free circular. F. L. Barber, Lowville, N. Y.

Try ALEXANDER'S Italian queens for results. Untested, each, 75 cts.; 6 for \$4.25; \$8 per dozen.
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"She-suits-me," bright Italian queens, \$1 after May 15. Orders booked now.
Allen Latham, Norwichtown, Conn.

Lefingwell's three-band Italians for the season of 1917. Send for circular and prices.
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Vigorous, prolific Italian queens, \$1; 6, \$5, June 1. My circular gives best methods of introducing.
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FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1; 6 for \$5.
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FOR SALE.—25 colonies of Italian bees, frames wired, combs built on full sheets of foundation; 8-fr. colonies, \$6; 10-fr., \$7 with queen.
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Southwest Virginia five-band Italian queens, the fancy comb-honey strain, gentle to handle. They will please you. Try one. \$1.00 each.
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FOR SALE.—Ten colonies Italian bees in Buckeye double-walled hives, all in first-class condition. New queens introduced last fall; \$10.00 per colony.
Keewaydin Farms, Gates Mill, Ohio.

Golden and 3-band Italians; also Carniolan queens; tested, \$1.00 each; untested, 75c; for larger lots and bees in packages and nuclei write for prices.
C. B. Bankston, Box 65, Buffalo, Texas.

My 3-banded Italian queens will be ready to ship April 1. Write for prices of bees and queens by the pound. Safe arrival and satisfaction guaranteed.
J. A. Jones, Greenville, Ala.

FOR SALE.—Thirty swarms of Italian bees. On account of poor health I will sell them cheap. They are in eight and ten frame hives, Hoffman frames.
Mrs. Mary True, 143 Elm St., Fostoria, O.

FOR SALE.—Italian queens and bees in comb-less packages; safe delivery and satisfaction guaranteed in all respects. Write for prices.
Oscar Mayeux, Hamburg, La.

FOR SALE.—25 colonies of bees. Some of them are Moore's strain of Italians in 20-frame alternating hives; \$6.00 per hive.
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I am now booking orders for 3-frame nuclei for spring delivery, young tested queens, 3 bands, lots of bees; satisfaction; \$4.00 each. Also colonies and supplies. S. G. Crocker, Jr., Roland Park, Md.

FOR SALE.—1000 lbs. bees in 2-lb. packages at \$1.00 per lb. Untested Italian queens, 70 cts. extra, to be shipped in April. All orders must be in by April 1. T. W. Burleson, Waxahachie, Texas.

BUSINESS-FIRST QUEENS.—Three-banded Italians—untested, \$1.00 each; 6 for \$5.00. Send for price list and \$10 free offer. No disease.
M. F. Perry, Bradentown, Fla.

Select golden and three-banded Italian queens, bred for honey-gatherers; gentle and prolific; 70 cts. each; 6, \$3.75; 12, \$7.25. Booking orders now.
G. H. Merrill, Pickens, S. C.

FOR SALE.—1000 lbs. bees in packages, \$2.00 per lb., with untested queen; without queen, \$1.25 per lb., warranted queens, \$1.00 each; 6 for \$5.00; doz., \$9.00. Safe arrival and satisfaction guaranteed.
J. F. Archdekin, Bordlonville, La.

Swarms in packages, also Italian queens, can be had—the kind that will increase your smiles and your bank account from W. D. Achord, of Fitzpatrick, Ala. See his large ad't elsewhere in this magazine. Circular to you for the asking.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; 6, \$5.00; tested, \$3.00; breeders, \$5.00 and \$10.00. C. W. Phelps & Sons, Wilcox St., Binghamton, N. Y.

FOR SALE.—Italian bees and queens. One-pound, two-pound, and three-pound packages, with queens; also on frames and full colonies. Ask for our price list, free beginner's book, and bee-supply catalog.
Deroy Taylor Co., Newark, N. Y.

My bright Italian queens will be ready to ship April 1 at 75 cts. each; virgin queens, 30 cts. each. Send for price list of queens, bees by the pound; safe arrival and satisfaction guaranteed.
W. W. Talley, Rt. 4, Greenville, Ala.

Two-frame nuclei, 3-band Italian bees, \$2.25; 1 lb. bees with queen, \$1.65. Hoffman brood-frames, wired, and foundation, at catalog prices less carriage, if ordered for parcel post. J. B. Marshall & Son, Rosedale Apiaries, Big Bend, La.

My bright Italian queens will be ready to ship April 1, at 60 cts. each: virgin queens, 30 cts. Send for price list of queens, bees by the pound and nucleus. Safe arrival and satisfaction guaranteed.
M. Bates, Rt. 4, Greenville, Ala.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; each, \$1.00; 6, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.
J. B. Brockwell, Barnetts, Va.

Golden Italian queens, bred strictly for business, that produce a strong race of honey-gatherers; untested queens 75 cts. each; \$8.00 per dozen; \$60.00 per 100; tested, \$1.50 each. Prompt service and satisfaction guaranteed.
L. J. Dunn, 59 Broadway Ave., San Jose, Cal.

QUEENS.—Improved three-banded Italians, bred for business, June 1 to Nov. 15, untested queens, 75 cts. each; dozen, \$8.00; select, \$1.00; dozen, \$10.00; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.
H. C. Clemons, Rt. 3, Williamstown, Ky.

FOR SALE.—Black or German bees, just as good as thorobreds for building up or strengthening colonies in early spring. 1, 2, 3, or 4 fr. nuclei; 1 and 2 lb. pkgs. Write for prices.
Mrs. T. H. Carruth, Big Bend, La.

GOLDENS THAT ARE TRUE TO NAME.—Write for testimonials. One race only. Unt., each, 75c; 6, \$4.25; 12, \$8.25; 50, \$32.50; 100, \$60.00. Tested, \$1.50; select tested, \$2.00. Breeders, \$5.00 and \$10.00.
Garden City Apiaries, San Jose, Cal.

FOR SALE.—Three-banded Italian bees and queens. 1 untested queen, \$1.00; tested, \$1.50; 3-frame nucleus with untested queen, \$4.00. My queens are reared from the best breeders and by the best known methods. No diseases. Satisfaction guaranteed. Ask for prices on larger quantities.
J. L. Leath, Corinth, Miss.

FOR SALE.—25 colonies Italian bees in 10-fr. hives, wired frames; combs built on full sheets of foundation; no disease; \$4.50 per colony; purchaser to move them.
J. B. Ratcliffe, Amboy, Minn.

FOR SALE.—29 stands Italian bees—strong healthy colonies; eight and ten frame dovetailed hives; also extra hives, supers, feeders, and a complete list of implements. These go at a bargain.
J. F. Drebert, Boomer, W. Va.

Golden Italian queens about May 1, that produce golden bees; good honey-gatherers. No foul brood. Select tested, \$1.25; tested, \$1.00; untested, 75 cts.; 6, \$4.25; 12, \$8.00. No nuclei or bees for sale.
D. T. Gaster, Rt. 2, Randleman, N. C.

FOR SALE.—Mott's northern-bred Italian queens are hardy, prolific, gentle, and hustlers, therefore resist disease well. Bees by pound. Plans, "How to Introduce Queens and Increase," 25 cts. List free.
E. E. Mott, Glenwood, Mich.

Head your colonies with some of our vigorous young three-band Italian queens. Untested, June 1, \$1.00; \$9.00 per doz.; nuclei and full colonies. Satisfaction guaranteed.
A. E. Crandall & Son, Berlin, Conn.

Golden Italian queens from June to November, untested, 75 cts.; 6, \$4.25; doz., \$8.00; tested, \$1.25; 6, \$7.00; select tested, \$1.50; breeders, \$5.00. Bees by pound or nucleus. Pure mating guaranteed. Send for circular.
J. I. Danielson, Fairfield, Ia.

TOO MANY BEES.—Must sell by April 1, 3-band Italians; one colony, \$5.00; 6 for \$24.00; 1-frame nucleus, \$2.00; 6, \$10.50; 2-frame nucleus, \$2.50; 6, \$13.50; one untested queen, 75 cts.; 6, \$4.00; one tested queen, \$1.00; 6, \$5.00. These prices are good only to April 1. Book your order now. Satisfaction guaranteed.
W. J. Littlefield, Box 582, Little Rock, Ark.

QUEENS. Doolittle and Moore strain, also Goldens that are Golden. 1 select unt., \$1.00; 6, \$4.25; 12, \$8.00; tested, \$1.25. Best breeder, \$5.00.

Bees by the pound a specialty. One 1-lb. package \$1.25; one 2-lb., \$2.25; large lots less; also nuclei and colonies. Ready March 15. Booking orders now. Circular free.

J. E. Wing, 155 Schiele Ave., San Jose, Cal.

Three-banded queens only, ready after May 1. Dr. C. C. Miller queens, \$1.00 each; 12 for \$10.00; breeders, \$10.00 each; my own strain, \$1.00 each; 12 for \$9.00; breeders, \$5.00 to \$10.00 each; nuclei and full colonies ready June 1; 2-fr., \$2.50; 8-fr., with queen, \$8.00; 10-fr., with queen, \$10.00. Add price of queen you want with nuclei.

Curd Walker, Queen-breeder, Jellico, Tenn.

Good Italian queens. Tested, \$1.00; untested, 75 cts. Bees in 1-lb. packages, with untested queen, \$2.25; 2-lb. package, \$3.25; 1-lb. package, with tested queen, \$2.50; 2-lb. package, with tested queen, \$3.50. Nuclei, 2 frames, with untested queen, \$3.25; 3 frames, \$4.00. Nuclei with tested queen, 2 frames, \$3.50; 3 frames, \$4.25. We can please you.

G. W. Moon, 1904 Park Ave., Little Rock, Ark.

FOR SALE.—200 stands high-grade bees—averaged 80 lbs. comb honey last season and 75 lbs. the year before. Are all located in town, and only one block from main street. I am getting too many in town, and may eventually have to remove them, therefore will sell 200 stands. Also for sale 10,000 lbs. white-clover comb honey.

G. F. Schilling, State Center, Ia.

BEES FOR SALE.—I have bought, after personal inspection, 100 colonies of Italian bees on eight-frame self-spacing Lang. combs built on full sheets of foundation. These are from Chas. E. Stuart, for eighteen years inspector for New York state. These bees have been selected and bred for European foul-brood resisting, and for honey-gathering qualities. I offer a few colonies for sale. Delivery f. o. b. my station, in either New York state or Canada. Ad. will not appear again.

R. F. Holtermann, Brantford, Ontario, Canada.

Golden Italian queens of the quality you need. Bred strictly to produce Golden bees that are real workers. Delivery after March 25. Untested, 1, 75 cts.; dozen, \$8.25; 50, \$32.50; 100, \$60.00. Bees by the pound, nucleus, or full colony. Money back if not satisfied.

L. J. Pfeiffer, Motor Route A, Los Gatos, Cal.

TENNESSEE-BRED QUEENS.—My three-hand strain that has given such universal satisfaction for over 40 years. Orders filled promptly or money returned by first mail. 1000 nuclei in use. Tested, in June, \$1.75; untested, \$1.00; in July, \$1.50 and 75 cts. Postal brings circular.

John M. Davis, Spring Hill, Tenn.

M. C. Berry & Co., Hayneville, Ala.—Book my order for 6 2-lb. packages of your bees with queens. One of the two-pound packages bought of you last year made 200 pounds of honey, and several made 125 to 150 pounds each. I find your bees not only hustlers but also gentle.

Fred H. May.

Meredosia, Ill., Jan. 22, 1917.

M. C. Berry & Co., Hayneville, Ala.—Book my order for 10 1-lb. packages of your bees with queens. The ten packages bought of you last spring, altho delayed in transit, and therefore taking five days to reach me, arrived in fine condition—not a cupful of dead bees in lot. They did well, more than paying for themselves the first season, and also went into winter quarters in fine condition. I have tried queens from several different places, and like yours best of all.

C. O. Board.

Alabama, N. Y., Jan. 22, 1917.

MISCELLANEOUS

BASSWOOD TREES.—All sizes; send for list. W. M. Hansen, Jr., Niles, Mich.

FOR SALE.—1910 Indian motorcycle, just repaired. M. Ballard, North Branch, N. Y.

Quality Dahlias (northern grown). Send for catalog. Mrs. E. L. G. Davis, Rt. 2, Newton, N. H.

HONEY SIGNS.—Made to order. Send for price and description. S. Goodlander, Wabash, Ind.

Send 20 cts. in stamps and receive a collection of 15 Atlantic City and seashore colored post cards. 31802 Box 224, May's Landing, N. J.

How to double your honey production at a small cost. Send 2-cent stamp for information. W. M. Budlong, 1526 14th Ave., Rockford, Ill.

FOR SALE to the highest bidder, 26 volumes GLEANINGS, 1883 to 1909 inclusive; nearly all complete. Mont Wyrick, Cascade, Iowa.

Your old portrait renewed or any photo copied to cabinet size, 6 for \$1.25. B. A. Ruple, Co. Photographer, 3611 Archwood Ave., Cleveland, O.

PURE MAPLE SYRUP.—If you were disappointed about getting your maple syrup last year, why not order earlier this year? We shall probably be making syrup before this ad't reaches its readers. C. C. Parkhurst, Rt. 1, Phalanx Sta., Ohio.

HELP WANTED

Man wanted to work on a small farm and with bees. S. Stewart, Newcastle, Colo.

WANTED.—Experienced beeman for season of 1917. Roscoe F. Wixson, Rt. 20, Dundee, N. Y.

WANTED.—Two men to work with bees the coming season; must have some experience. B. B. Coggsall, Groton, N. Y.

WANTED.—Single man in family, competent to run 6 beeyards of 200 colonies each, on shares or on salary. Don't answer this ad't except for business only. Frank Reimann, Cauto, Cuba.

WANTED.—Man to work with bees, season 1917. State age, experience, and wages. The Rocky Mountain Bee Co., Billings, Montana.

WANTED.—Young or middle-aged man of experience to do farm and garden work. Must be temperate, and a man of good character. S. L. Cork, Peru, Ills.

HELP WANTED.—Two good active men with experience to help in bee and queen yards. Board furnished. State wages wanted. Stover Apiaries, Starkville, Miss.

WANTED.—Reliable man of good habits to work my home apiary and small farm. State age and wages first letter.

Mrs. H. C. Ahlers, Rt. 1, Box 11, West Bend, Wis.

WANTED.—Farm-raised man of good habits, who has had some experience with bees, as helper with bees, etc., season 1917. Give age, experience, and wages wanted, first letter.

Frank Kittinger, Franksville, Wis.

WANTED.—An experienced lady beekeeper with \$300 to \$500 to take charge of 50 stands of bees for three years, on shares; also care for two girls, ages 6 and 7; liberal pay.

C. E. Crowfoot, Box 76, Crook, Colorado.

WANTED.—Queen-breeder to take up proposition to supply our members with queens. Location and equipment furnished. About 3000 queens used in 1916. Idaho-Oregon Honey-producers' Association, New Plymouth, Idaho.

WANTED.—Experienced queen-breeder and all-around beeman—one who is a hustler and knows the business. Young unmarried man preferred. We furnish board and lodging. Write us your age, experience, etc., with lowest wages first letter. The Penn Co., Penn, Miss.

WANTED.—Industrious young man, fast worker, and of clean mental and body habits, as a student helper in our large bee business for 1917 season. Will give results of long experience, and board and small wages. Give age, weight, experience, and wages in first letter.

W. A. Latshaw Co., Clarion, Mich.

WANTED.—Young man with a little experience, fast willing worker, as student helper with our 1000 colonies. Crop for past two years, 6 carloads. Will give results of our long experience and small wages; every chance to learn. Give age, height, weight, experience, and wages, all in first letter, or expect no answer. E. F. Atwater, Meridian, Idaho.

EXPERIENCED MANAGING BEEMAN wanted to handle bees on shares in Ozark Mountains, Ark. We furnish bees, also house, garden spot, farm-home privileges, and work on farm when not engaged with bees. Can also raise unlimited quantity of chickens if he desires. Owner away for health.

C. W. Riggs, 502 Jackson St., Tampa, Fla.

Two young men can, during the season of 1917, reap the benefit of my experience for nearly forty years with up to 800 colonies of bees; also as public demonstrator with bees and lecturer and expert in beekeeping at the Ontario Agricultural College. One with clean body and mind required. Board; and, if the season is good, a little more given.

R. F. Holtermann, Brantford, Ontario, Canada.

CONVENTION NOTICES

A NEW ASSOCIATION.

The beekeepers of southern Indiana and Illinois will be interested to know that plans are on foot for the perfecting of a new organization to be known as the Wabash Valley Beekeepers' Association. For the purpose of electing officers and mapping out a program of work a meeting is called, March 10, at Mt. Carmel, Illinois, the headquarters to be at the Merchants' Hotel. A hall will be secured later on. Any further information can be secured from C. H. Wiley, 502 East Locust St., Harrisburg, Ills.

TRADE NOTES

We have six copies of "Fifty Years Among the Bees," by Dr. C. C. Miller, 1915 edition, which have the covers slightly soiled. Otherwise the volumes are in perfect condition, and in some cases the covers are soiled only on the corners. To clear these volumes we offer them at 75 cts. each, prepaid.

COGGSHALL BEE-BRUSH.

Broom-corn has become so scarce and high that we are unable to buy Cogshall bee-brushes except by paying about two and a half times the normal price. We are obliged, therefore, to advance these brushes to 30 cts. retail, with a corresponding increase in wholesale and jobbing prices.

SECOND-HAND HONEY-EXTRACTORS.

We recently accepted two two-frame Cowan honey-extractors in part payment for a larger-size power machine, and we offer these machines at special price as follows:

A No. 15 Cowan for two L. frames, from Chicago, Ill., at \$11.00; A No. 15 Cowan two-frame machine from Grandview, Wash., at \$13.00. Both machines are in good condition, and are of late style with slip-gear device.

ORDER YOUR SUPPLIES EARLY.

On account of the special stress of war conditions, freights are now greatly delayed. If there was ever a year when beekeepers should order early to get supplies it is this one. It may take anywhere from a month to six weeks to deliver freight that ordinarily would not require more than three or four days. Unless beekeepers are forehanded they will be ordering by express and paying big bills. Order early and be ready for the harvest.

BEESWAX WANTED.

In line with the advance in comb foundation we are prepared to offer higher prices for beeswax. Until further notice we will pay 34 cents cash, 36 in trade, for average wax delivered at Medina; 1 ct. a pound less at our branch offices. This is a higher price than we have ever published in GLEANINGS during the more than forty years it has been published. Thirty years ago this month we were offering 20 cts. cash, 23 trade. If you have a good lot of wax on hand, let us hear from you. Remember we exchange comb foundation for beeswax at very favorable exchange rates, which we will mail to those interested on application.

COMB FOUNDATION ADVANCED.

Because of an unusual and excessive demand for Leeswax for export to Russia, the market price has sharply advanced in recent weeks to a point far above anything in our experience this early in the season. Altho our catalogs have hardly all been mailed, we are under the necessity of announcing an advance of 5 cents a pound in the price of comb foundation of all grades, retail, wholesale, and jobbing, effective Feb. 20.

We started in the year with a larger stock of beeswax than usual; but our output of foundation for December, January, and February will reach over seventy thousand pounds, and some additional was sold on contract last fall, not yet delivered, so that, in self-defense, we are under the necessity of making this advance in the price of foundation this early in the season. We give no assurance that there will not be another advance before the season closes. Prices are more liable to go higher than to recede, for several months.

The A. I. Root Company.



and Supplies at Factory Prices

Satisfaction guaranteed or your money refunded. We are glad to have "Kretschmer's" popular make of bee supplies, and we still have some of the "Lewis" make, which we are closing out at a reduced price. Liberal discount to new customers. Drop us a card for our 1917 catalog.

W. H. Freeman

Peebles, Ohio

CANDY

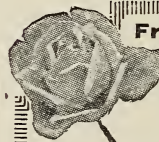
Bees sometimes starve with plenty of honey in the hive. Why not avoid this risk by placing a plate or two of candy on the frames when you pack for winter? It is a good life insurance. Send for circular also catalog of supplies.

H. H. Jepson, 182 Friend St., Boston, Mass.

PENNSYLVANIA BEEKEEPERS

Our catalogs now out. Postal will bring you one. Root's goods at Root's prices. Prompt shipment.

E. M. Dunkel, Osceola Mills, Pa.



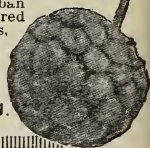
From roses to raspberries

every need of the suburban garden is helpfully covered by the sturdy plants, roots, vines and trees shown in

Collins' Guide, FREE

Get your copy at once.

Arthur J. Collins & Son, Moorestown, N. J.
Box 42



Finest ITALIAN QUEENS

We have on hand a limited number of select tested queens that were reared during the light honey flow last September and were wintered in large nuclei. We are offering these queens for \$2.50 each, safe arrival and satisfaction guaranteed. Will be shipped any time desired, as soon as weather will permit. If supply is exhausted when order is received, money will be promptly refunded. . . . Send for booklet and price list of queens and bees by the pound.

Jay Smith, 1159 DeWolf St., Vincennes, Ind.